J. Martin Miller

Courtesy of the Chicago Examiner.

ITALIAN SOLDIERS WORKING IN THE RUINS.

Reproduction from photograph taken at Messina; thousands of victims were buried under mountains of wreckage.

THE WORLD'S GREATEST DISASTER.

THE COMPLETE STORY

OF THE

ITALIAN EARTHQUAKE HORROR

Graphic Accounts of This Most Awful Catastrophe in Which Two Hundred Thousand People Lost Their Lives—Tens of Thousands of Homes Crumbled to Dust in a Few Seconds—Terrible Tales of Suffering in the Kingdom of Death—Personal Experiences of Survivors and Thrilling Escapes from Death—Tragic Tales of Suffering—Daring Deeds of Heroism—United States First to Send Help—The Nations of the World Aid the Afflicted—The U. S. Battleship Fleet to the Rescue. :: :: :: ::

BY

J. MARTIN MILLER

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Author of "Twentieth Century Atlas and History of the World"—"Destruction of Martinique"—"Story of China"—"Russian-Japan War," etc., etc.

CONTAINING ALSO

A History of Italy and Sicily; Other Great Disasters of the World, both by Earthquakes, Volcanoes and Tidal Waves; Scientific Explanations of their Causes.

ILLUSTRATED WITH REPRODUCTIONS OF PHOTOGRAPHS TAKEN ESPECIALLY FOR THIS VOLUME.

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DEDICATED

—TO—

the humanity, which in its spontaneity of tender sympathy, unstintingly and indelibly forged the chains that bind the entire world in Love and Mercy, and obliterates all selfishness.

INTRODUCTION

The first ten years of the Twentieth Century will go down in history as the Earthquake and Volcano Decade.

On May 8th, 1902, thirty thousand human lives at St. Pierre, under the shadow of Mount Pelee, were snuffed out of existence in thirty seconds.

When the author of this book, ten days afterwards, visited the scene at St. Pierre, it was evident that not one living, breathing creature, including the domestic animals and fowls, had escaped instant death.

Everything, buildings and all, given form by man, had been completely annihilated. At the same instant, almost seventy miles across the West Indian waters, the fury of the awful flow of molten lava destroyed two thousand lives on the British isle of St. Vincent.

The Charleston and St. Louis Cyclones, the Johnstown Flood, and the Galveston Tidal Wave of the fifteen years before the dawning of the Twentieth Century were dwarfed into insignificance, in the loss of human beings, by the Martinique Disaster. Closely following the annihilation of St. Pierre came the destruction of San Francisco; Kingston, Jamaica; Valparaiso, Chile, and the awful tidal wave at Hong Kong. At each of these horrors of Nature the world was dazed. But, in the disaster occurring in Italy during the Holiday Season of 1908, every man and woman of the earth were turned from the festivities of the season into deepest gloom and sorrow, with thoughts of practical charity, sympathy and help for their stricken Italian brothers and sisters.

Individuals, societies and nations united in one grand common effort for immediate succor for the stricken-down Italians and Sicilians. Our own great navy hastened, at the finish of the famous cruise around the world, to save and preserve life and to assist in burying the scores of thousands of the dead. What a noble mission

for a navy! If a navy, in imagination, stands for destruction, may its meaning now be modified to mean, both in imagination and in fact, an instrument of mercy, of help, and of construction, rather than a weapon of death-dealing destruction.

It is estimated that the Italian and Sicilian Earthquake destroyed five times as many lives as the total loss of life in all the other catastrophes enumerated above. The loss of hundreds of millions of property value and the impoverishment of tens of thousands of the survivors, directly or indirectly interested, is, of course, remotely secondary when we contemplate the horrifying details in the cruel loss of life.

If there has ever been a book written to commemorate a disaster more awful and far-reaching probably than all of Nature's disasters combined during the century preceding this one, this is certainly the book.

Vesuvius and the cities, ancient and modern, as well as Caracas, Yeddo, Mauna Loa, Mount Etna, are names that have long caused the heart of every human being to shudder, but all of the disasters caused by these mysterious and wonderful works of Nature may be considered insignificant in comparison with the Italian-Sicilian Cataclysm. Nature never did her work on so grand a death-dealing scale as in this calamity.

To recall Sicily reminded one of peace in a luxuriant garden, a place made happy and kept in bloom by the fancies of Nature. Climatically it is semi-tropical. The olive, the cocoanut, the fig, the citrus and other fruits grow in abundance.

Many things combined to make Sicily the most ideal winter resort, probably, in the world, in many respects. Thousands of Americans visit the island each winter. Regular lines of steamers connect Palermo, the chief city of Sicily (and did connect Messina), with Naples, Genoa and other Italian ports.

The site of Messina lies along the narrow Straits of Messina, separating Sicily from the mainland of Italy. Steamers from Japan, China, India, Australia, New Zealand and the east coast of Africa, as well as from Egypt, the ports of the Holy Land, Turkey and Austria, bound for Naples, Genoa or Marseilles, always pass through the Straits of Messina, very close to the lost city, taking

Courtesy of the Chicago Examiner.

A STREET IN MESSINA AFTER THE EARTHQUAKE.

This picture could be called "In the presence of the Dead," it shows a group of survivors surrounding a victim just taken from the ruins.

Courtesy of the Chicago Examiner.

MESSINA—A PORTION OF THE RUINED CITY.

Survivors and friends searching the ruins for relations and valuables.

Courtesy of the Chicago Examiner.

PALMI—SHOWING RUINS AND SURVIVORS.

This photograph shows the survivors who have returned, to what was once their homes, to search for their belongings.

its name from the straits. Soundings recently made in front of Messina indicate that the straits in some places are from ten to twenty fathoms more shallow than before the earthquake. For a time after the earthquake navigation through the straits was very dangerous. A new survey of the straits has since been made and new charts printed to conform to the entirely changed condition of the channel.

From Messina one can easily look across the straits to the mainland of Italy and follow the railway trains with the eyes as they worm along the coast-line railway reaching to Reggio and beyond. The view of Italy proper, to be obtained, from Messina, is indeed an enchanting one. If any part of Italy is more sunny in winter than any other portion, it is in this immediate section of the southern end of the peninsula.

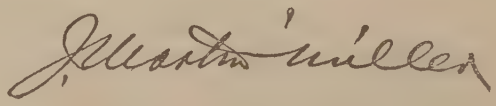
From the highest positions in Messina the view in a southwesterly direction across Sicily takes in in its sweep the majestic and famous Mount Etna, towering 10,874 feet above sea level. It will be seen, then, that Messina lies between Vesuvius at Naples and Mount Etna in Sicily. Vesuvius during the past few years has, on different occasions, frightened the people away from Naples and its environs. These rumblings and intermittent eruptions were looked upon as stern warnings. There were no warnings at Messina and Reggio di Calabria and the other unfortunate communities that were destroyed.

With the exception of South America, there are more Italians in the United States, outside of Italy, than in any other country of the world. It is said that New York City has more Italians than Rome has inhabitants. The very large Italian population in our country tended to lend a keener interest in the disaster than that possessed by any other country. In a sense, this calamity in Italy was a disaster to the United States. The Italian population of our country is a very great factor in our business and political life and the business interests between the two countries are enormous. The earthquake disaster had a great effect upon business in certain lines in the United States, and those of our business men having direct commercial relations and investments in the stricken Italian district were very materially affected. The exports from Messina

and all that part of Sicily and Italy were very large, particularly in fruits.

The sorrow of the whole world is universal and sympathy is expressed by all human hearts. The only consolation in this great catastrophe is the thought that the whole world mourns—not Italy alone, but the United States of America and every other nation of the civilized world. The generous impulse of the United States, the Red Cross and other societies of our country, as well as the immediate response of our government and the generous appropriation of our Congress upon convening after the holiday recess, in answering the cry of distress, hunger and pain, will never be forgotten by the Italian Kingdom. Thousands of Italians in the United States lamented the loss of relatives and friends. The unfortunate Mr. Cheney, the American Consul at Messina, my colleague in the Consular Service of the United States for three years, with his family, perished with the other inhabitants of the lost city.

The author wishes to acknowledge the great debt of gratitude that he is under to his many friends in the Consular service, etc., as well as to H. R. Chamberlain, S. C. Andrews and J. T. Thompson who assisted in the gathering of information to make this book complete and accurate.



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The one bright spot which relieved the gloom of this gigantic tragedy was the heroism of those engaged in the work of rescue.

SURVIVORS IN A CUSTOM SHED CRYING FOR BREAD AND WATER.

The lack of water and food drove the refugees into paroxysms of frenzy. The picture shows the crazed people appealing to a passing boat for help.

COMPLETE STORY OF THE

Italian Earthquake Horror

CHAPTER I.

THE DESTRUCTION OF MESSINA, SICILY.

More Than a Hundred Thousand People Hurled into Eternity in an Instant—Destruction, Devastation and Death—The Earth Opens Up in Crevices Creating Chasms into Which Buildings Tumble to Complete Destruction, Killing the Inmates—Falling Buildings Engulfed Fleeing Men, Women and Children—One Hundred Thousand Killed, Ten Thousand Wounded and Pinioned Between Timbers and Heaps of Tumbling Masonry Forming a Veritable Inferno and a Carnival of Death—The Destruction of Shipping in the Harbor Was Complete.

Sicily, a beautiful island, sleeping peacefully in the soft, warm air of a semi-tropical dawn, the blue waters of the Mediterranean lapping its shores. Rising from the waterfront to the hillsides that stretch back to the verdure-covered mountains is Messina, a city of 150,000 souls. Smaller cities and towns dot the landscape at intervals while the intervening sections are filled with agricultural lands, vineyards and orange groves. Happy and care-free are the people of this island, as the comforts of climate and the natural products make severe labor unnecessary, and all forms of life are cheerful and light-hearted.

Suddenly there is a tremendous upheaval—the earth rocks and shakes as if in the grasp of some giant monster, and half of the beautiful island becomes one great tomb. The Angel of Death has spread his pall over it, slaying one hundred and fifty thousand and injuring and maiming thousands upon thousands more.

What was this tremendous power of evil that robbed this city of life? What could destroy over a hundred thousand lives and hundreds of square miles of beautiful country, all in less than a minute? Earthquake, Tidal Wave and Fire.

At half-past five o'clock on Monday morning, December 28th, 1908, the southern part of Italy, and the eastern part of Sicily, was visited by a terrific earthquake, lasting 23 seconds, which completely annihilated everything within its zone. Following immediately after the great shocks came an enormous tidal wave that hurled itself with resistless fury against the already stricken city, completing the work of destruction in the lower part of the town. Almost immediately afterwards fires broke out in many places and turned the vast sepulchre into an actual inferno.

Mount Etna, one of the largest volcanoes in the world, is but a few miles from Messina, and the convulsions of the earth caused it to become active so that thunderous detonations reverberated over the stricken city, adding terror to the agonizing cries and shrieks of the wounded and groans of the dying.

No mind can conceive and no pen can describe the enormity of this great disaster, the greatest that has befallen any people since the history of the world began. That morning in Messina was one of horror upon horror, absolutely indescribable. Every building in the city crumbled and fell, burying tens of thousands under the ruins, or pinioning them under timbers only to meet the cruel fate of slow torture of dying by hunger or watching the flames creep nearer and nearer to their doom.

The first shock was the most violent, others followed quickly. According to one survivor, interviewed at Catania, the earth cracked like the report of a Maxim gun. The shock was so sudden that scores of houses collapsed like cardboard before the terror-stricken inmates could leap into the streets.

The suddenness of the shock was responsible for the huge death roll. Thousands were killed in their beds before they could realize what was happening. Others were killed by falling debris or shattered under masonry that toppled into the streets as the earth continued its quivers and even long after all pulsations had ceased.

In the words of another survivor, a merchant named Piazinni,

who escaped to Catania wearing a bath robe and slippers: "the scene immediately following the first shock was like the coming of the end of the world. Thousands of men, women and children in night attire ran shrieking into the streets, half dressed, praying, wailing and cursing. Many rushed out only to be crushed by falling walls.

"With the first shock the electric and gas lights went out and the city was in darkness, only to be lighted brilliantly in another minute or two by the flames of burning houses.

"The frenzied prayers of the people, the groans of the dying and the piteous appeals for help from those imprisoned in the ruins made a scene of horror, but the climax was not yet reached.

"While the dazed inhabitants were still crawling out from their wrecked homes a tidal wave engulfed the lower part of the town. The sea receded several hundred feet and then rolled back on the city with tremendous force.

WATER RISES NINETY FEET.

"A wall of water from fifty to ninety feet high swept over the wharves, warehouses and magnificent commercial structures adjoining the harbor. Entire streets were obliterated, ships at anchor were cast up into the town and then borne back seaward as battered wrecks. The stone docks were torn up and the ponderous stones tossed about like wooden chips.

"Day broke over a scene of desolation. The harbor of Messina had practically disappeared, and with it nearly all the shipping. The lower part of the town was swept clean by the tidal wave, while the remainder was a mass of twisted, shattered buildings.

"Fires broke out simultaneously in three places, and, owing to the lack of apparatus and water supply, quickly gained headway. The Strait of Messina was dotted with corpses and wreckage, carts and household furniture, swept seaward. Vessel captains reported having passed through this debris for miles beyond Messina."

FLAMES BREAK OUT AFRESH.

Throughout the morning of December 28 the ruins blazed fiercely, but the soldiers and sailors finally succeeded in checking the flames.

The magnificent cathedral was a total loss and the bishop's palace collapsed. Those of the priests who escaped injury worked ceaselessly, among the ruins, often giving absolution to victims pinned in the wreckage who could not be extricated before the flames reached them.

All the hotels in the lower part of the town collapsed. The barracks collapsed at the first shock, burying a majority of the soldiers. Hardly a survivor escaped injury. The few who were able immediately formed rescue parties and assisted in restoring order and succoring the wounded.

MANY BURIED ALIVE IN RUINS.

Many persons were buried alive in the ruins and died before help reached them. Great difficulty was encountered in clothing the survivors. The majority lost all clothing except their night garments and wandered about the streets in a picturesque state of undress. Several shiploads of scantily-clad survivors were landed at Palermo and Catania. The crews of vessels supplied many with clothing. The Prefect of Messina escaped wearing only pajamas. Thus clad he directed the rescue party.

The postoffice and town hall were destroyed. Many people became mad through fright and grief. One wealthy banker who lost his wife and son was found a raving lunatic delving in the ruins of his home and a detail of soldiers carried him away.

RAIN ADDS TO THE MISERY.

The misery of the victims was intensified by the showers of rain falling continuously throughout the day. Repeated shocks were felt not only in Messina, but in the surrounding district, causing a renewed panic to the survivors.

Many attempts were made to pillage the ruins of Messina. Offenders were promptly arrested. Troops surrounded all the devastated area and additional soldiers were dispatched from Palermo and Naples for emergency service. Warships and steamships plying between Messina and Palermo were used for the transportation of supplies and the deportation of the survivors and wounded.

FIRST REPORTS CONFIRMED.

The first cable reports of this earthquake horror were considered very extravagant, and only "newspaper reports" supposed to have been written by some news vendor to make good reading. It, however, proved to be true and later developments convinced all that it was a colossal tragedy and one that made the whole world shudder.

Each day after the disaster added thousands upon thousands to the death roll. At first it was 25,000. Next day 75,000. Then 100,000 and finally the whole awful story became known and the number increased to between 200,000 and 250,000.

A STIRRING RECITAL BY AN EYE WITNESS.

The first calm and connected stories of the earthquake disaster came from officers and passengers of the Welsh steamer Afonwen, whose unemotional British temperament enabled them to relate in detail their experiences.

"During the night before the catastrophe," said the captain of the Afonwen, "we lay at anchor in the harbor of Messina under steam, ready to leave early the following day. It may have been about 5 o'clock in the morning when I heard a low, growling sound like distant thunder. Daylight had not yet dawned, but I was on deck and the crew were stirring. The peculiar sound made me glance anxiously at the sky and then at the sleeping town of Messina, neither of which afforded any explanation.

SHIP LEAPS HIGH IN AIR.

"Suddenly the Afonwen gave a terrific leap. That is the only word I can use. The ship seemed to rise up from the surface of the water as though lifted bodily by some mighty power underneath. The anchor chains snapped and we started to drift shoreward very fast.

"From the land came sounds of tremendous crashing and falling of buildings. The low, muttering thunder which I first had heard now became a roar of destruction. All the lights along shore went out in an instant. The darkness was intense.

"Instinctively I knew this was an earthquake and that tidal

waves were dashing us about the straits. The first thing to do was to save the ship, for other craft were being thrown about on all sides and there was imminent danger of collisions. Another boat was swept down upon us before I could get the crew to their stations and the Afonwen under control, but luckily the bump was slight and not much damage was done.

"Now the sea became tremendously agitated, with waves and walls of water rising on every side. The ship lifted to her beam ends. The deck heeled over to an angle of 25 degrees, so that we scarcely could keep our feet. For thirty-five minutes it was touch and go. Once a great wall of water struck us with such violence that I thought it was all over, but by a miracle we came through it.

GREAT HOLES OPEN IN SEA.

"It was like a cyclone from all points of the compass. The wind howled and the waves battered and swept the decks. Amazing and terrifying things were happening all around us. Great holes opened in the sea itself and seemed to reach down twenty to thirty feet and some to lesser depths.

"The water at first appeared to grow livid and then became white with foam.

"As soon as the worst of the tidal wave had passed I tried to see what had befallen the town of Messina, as the first faint streaks of daylight appeared, but nothing was visible of mole or buildings. I could see at first only the outline of the hills and a vast eddying cloud of dust, which speedily enveloped everything and settled down over the ship like a fog.

"With increasing daylight we could see how Messina had been destroyed. Before our eyes, houses and palaces still were toppling and falling to earth with noise like so many exploding powder magazines. Close beside us a Danish steamer had gone down and the surface of the water was littered with all manner of wreckage from it and other wrecked craft.

"When we looked at the land again it seemed to have taken on some fantastic coloring, something between a yellow tint and an ashen gray. The city itself was black with smoke split by ominous red streaks of bursting flame.

"Gradually the sea calmed down and the roar of the wind and waves decreased. Then shrieks and groans reached our ears, and we could see hundreds of terror-stricken persons flocking down to the water's edge, waving their arms and screaming frantically for help. Many of them plunged into the sea and swam out toward our ship. We took on board as many as could be accommodated."

At the time of the earthquake the torpedo boat Sappho was lying in the harbor at Messina, and one of the officers told of the occurrences as follows:

"At half-past five in the morning the sea suddenly became terribly agitated, seeming literally to pick up our boat and shake it. Other craft near by were similarly treated and the ships looked like bits of cork bobbing about in a tempest.

"Almost immediately a tidal wave of huge proportions swept across the strait, mounting the coasts and carrying everything before it. Scores of ships were damaged, and the Hungarian mail-boat Andrassy parted her anchors and went crashing into other vessels. Messina Bay was wiped out and the sea was soon covered with masses of wreckage which was carried off by the receding waters."

Professor Ricco, director of the observatory at Mount Etna, states that his instrument recorded forty-two distinct shocks after the first.

The captain of the steamer Washington, which was in the Straits of Messina at the time of the earthquake, says his vessel shuddered as if she had run aground. A thick fog prevailed at the time, and it was impossible for him to see the Messina lighthouse or the Calabrian coast. The Washington was soon surrounded with boats appealing for aid. The people were taken on board. The sea was littered with wreckage in every direction.

THE GRAPHIC DESCRIPTION OF A SURVIVOR.

"It is impossible for the wildest imagination to picture anything more terrific than the destruction of Messina," said Signor Serana, a survivor of Messina. "It seemed as if the entire city had been suddenly transformed into a whirlpool. We were petri-

fied with fear. It was next to impossible to proceed amid the piled up wreckage which effaced all traces of former streets.

"There were heartrending shrieks from the unfortunates who had fled to the streets. It was impossible to judge whether grief or terror was the stronger feeling.

"My wife and I were awakened by the first shock. Our first impulse was to rush to the windows. We found them blocked, so decided to try the door. We lived on the fourth floor, and feared the stairway had been destroyed. However, we decided to risk it and hurried down. Immediately after it crumbled and fell.

"When we reached the street the house collapsed. I then realized that my brother Charles, who married Miss Hart of Troy, N. Y., was buried in the ruins with his wife. We discovered them—literally unearthed them, as only their heads were free. We found their granddaughter suffocated.

SEARCH FOR AMERICAN CONSUL.

"The succeeding shock shattered everything. We fled towards the beach, dressed in our nightgowns, and begged some sailors to row us to the steamer Chesapeake, a petroleum ship bound for Genoa, which, fearing fire, hurried its departure. We left the Chesapeake and went aboard the British cruiser Minerva, where we were received through the kind offices of Mr. Lupton, the American vice-consul, who was indefatigable in relief work and searching for Americans in the ruined city.

"I went ashore again with Mr. Lupton and, climbing over broken beams, shattered walls and quantities of broken furniture, we finally reached the spot where the American consulate had stood.

"The consular building was about three stories high. It had entirely collapsed. We could hardly believe our eyes. Mr. Lupton climbed over the ruins calling out, 'Cheney, Cheney.' Mr. Cheney was the American consul.

"He was confident the consul would answer him. He said to me:

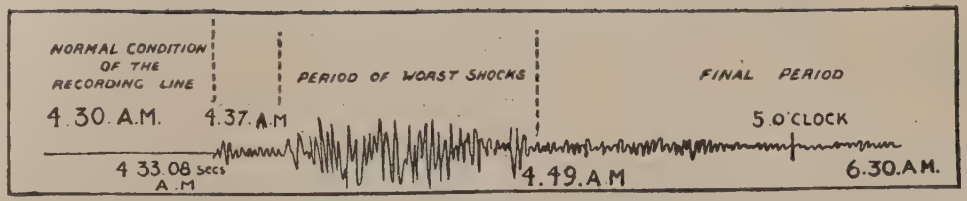
" 'Daylight has not come yet, and that is why I cannot see him but he must be somewhere in the wreckage.'

MESSINA——THE DAY BEFORE THE DISASTER.

This photograph was taken from the deck of a steamer in the harbor the day before the earthquake. The magnificent row of buildings on the front catches the eye first. When it is remembered that Messina was a seaport city and that the bulk of the business was shipping, there is not much wonder that its business houses should front on the harbor.

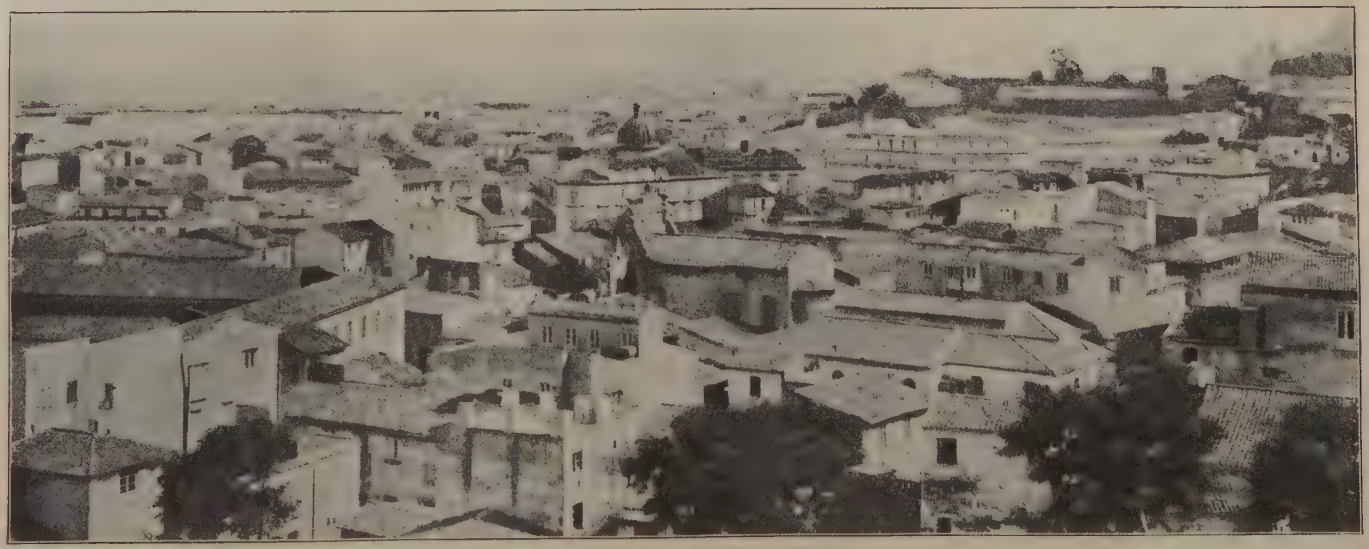
MESSINA—THE MORNING AFTER THE CATASTROPHE.

This photograph is the first that was taken of Messina after it had been devastated by the earthquake, by the tidal wave and by fire. Taken from the deck of a steamer in the harbor. The fate of those who were killed outright was by far the most merciful It was the horrors that followed, the mutilations, the fires, the slow agonies of the living tomb, the starvation and thirst and madness, the ravages of beasts and human ghouls, that called for our greatest sympathy.



SCIENTIFIC RECORD OF THE GREAT EARTHQUAKE IN ITALY.

Taken at St. Maur Park Observatory, Paris. The difference in time between Paris and Italy is three-quarters of an hour—4:30 a. m. in Paris would be 5:15 in Rome—The needle in its normal condition makes a straight line on the revolving paper—An earthquake shock causes the needle to move like a pendulum.



MESSINA BEFORE THE DISASTER—LOOKING FROM THE MOUNTAINS TOWARDS THE HARBOR.

This photograph shows an interesting view of this ill-fated city. As far as the eye can reach the homes of thousands are seen with the splendid harbor to the left. The substantial appearance of all the buildings strikes one most of all, yet they crumbled like paper from the awful shocks.

WITH TERROR IN THEIR HEARTS.

Survivors fleeing for safety from their dwellings. It was certain death for all who were unable to get out of their homes, and those who escaped had on only night clothes.

THE STROKE OF DOOM.

Nature in a few seconds overthrew the human labor of centuries and made a flourishing city a heap of ghastly ruins.

"Our search became more and more feverish, but as time wore on and it was still unsuccessful we finally realized its hopelessness. We saw it would be impossible to reach even the bodies of the unfortunate Cheneys. In addition to the collapse of the consulate a neighboring building had been precipitated upon the consular ruins, and the whole was a vast mass of wreckage.

PROBABLY MET INSTANT DEATH.

"Touched by the despair of Mr. Lupton, I tried to console him, saying that undoubtedly the Cheneys had been vouchsafed the mercy of immediate death and did not linger alive under the debris.

"We then left the ruins of Mr. Cheney's home. We had done everything in our power.

"Mr. Lupton was anxious to communicate with the department of state at Washington, and he managed to get a wireless message through Malta (this message was duly received). For some time after all communication from Sicily or the peninsula was practically impossible.

FEW AMERICANS VISIT MESSINA.

"Later Mr. Lupton and I, together with a party of British sailors, went ashore again. Mr. Lupton was anxious to learn if there had been any American victims of the earthquake. I was able to reassure him, as having lived in Messina forty years, in constant touch with the American consuls, I never knew of a single American resident. Furthermore, few American tourists came to Messina.

"To make assurance doubly sure we interrogated everybody we met who would be at all likely to know of any Americans, especially the managers and the waiters of the Hotel Trinacria. Thus we were able to ascertain that this hotel, where Americans would be most likely to stop, lost none of its guests with the exception of the Swedish consul and an Italian girl. These two unfortunates were killed at the first shock.

"As soon as communication with Catania was re-established we

were able to ascertain that Taormina was safe, and that no one there had been injured."

INFANT ALONE FOUR DAYS.

An infant clothed in a little nightshirt was rescued well and uninjured after having lain for four days on a square yard of flooring in a house that was otherwise entirely demolished

ALL PUBLIC OFFICES DESTROYED.

Continued advices from Messina told a pitiful story. Thousands of wailing unfortunates, scantily clad, wandered up and down the streets and cried aloud their hopes that their loved ones were uninjured and prayed to God to save them from further calamity.

Mothers had naked infants clasped to their bosoms; fathers stood in front of their crumpled houses digging madly at the ruins beneath which lay the bodies of their dead wives and children.

Families were scattered all over the city, fathers and mothers seeking their children and the latter seeking their parents. In hundreds of instances whole families were wiped out of existence.

Hundreds of buildings were destroyed, including practically all the public edifices of the city. Survivors were sheltered beneath boxes and carts.

Even small boats on the beach were turned bottom side up and beneath these many unfortunates were sheltered from the elements. To add to the horror of the situation ghouls plundered the dead, but this was stopped to a great extent by the soldiers, who guarded the city, with orders to shoot down any thief on sight.

Survivors said that for half an hour before the quake the heavens were filled with a gorgeous display of light resembling the aurora borealis.

It required an army of 25,000 men to rescue the living entrapped in the ruins and to bury the dead.

An Englishman named Barrett after the first shock at Messina found himself and his wife and child between mattresses on the ground and buried under the debris of the house, which had completely collapsed.

With difficulty he managed to extricate himself, but he was unable to save his wife and child, and they, imploring help, died of suffocation almost within reach.

WORSE THAN GREATEST WAR.

The minister of war, in dispatching orders to the military authorities, who have practically taken over the absolute power throughout the zone of the earthquake, explained:

"This disaster has resulted in a greater loss of life than any of our wars for independence. Indeed, the situation is much worse, as while war is always preceded by a period of preparation, this has happened within forty seconds. While war only affects the young and strong among the people, the present calamity has mowed down women and children, old men and youths. While in war the armies are followed by the most complete camp hospitals, the numberless wounded in Calabria and eastern Sicily have been left in many cases forty-eight hours without assistance. Even when rescued it was impossible to house them, everything available having been filled by the dead. Lack of care and starvation completed the work of death that the force of nature had left undone."

The commander of the Therapie gives a thrilling description of the rescues effected by his men when his ship arrived at Messina from Malta under instructions to convey the survivors to Naples.

TWENTY BIG FIRES RAGE.

"Twenty different conflagrations were raging. As the vessel drew up before the city it was surrounded by a flotilla of boats and tugs loaded to the gunwales with men and women who piteously cried for food and drink, for they had nothing for twenty-four hours.

"On entering the port a tremendous clamor greeted their ears. It was the survivors screaming for help.

"From the water front Messina appeared to be intact, as the facades of the fine buildings along that line of streets still were standing, but behind was emptiness and ruin.

"The principal square presented an awe inspiring aspect.

Everywhere were enormous cracks, into which the sea poured, whence clouds of steam and sulphurous vapors arose.

"To the right, before a big crumbling building, were heaped many corpses, whose desperate attitudes and contorted features showed the horror of the death struggles.

"The crew landed, but the work of rescue was most difficult. The ruins formed hillocks thirty feet high, under which thousands of persons were buried.

"The steamer was soon loaded down to its utmost capacity with survivors and then steamed to Naples."

SCYLLA AND CHARYBDIS GONE.

All along the way it was seen that the smiling villages on the Calabrian coast had been wrecked. Both Scylla and Charybdis suffered with the rest.

One tragic phase of the disaster was the fight for life made by the prisoners in the jail above Messina. There were nearly 1,000 of these, including 300 women.

The building collapsed at the first shock and the inmates were caught like rats. Several rows of cells remained intact, and those who were locked within them could be heard pounding the walls and crying aloud for help.

Then came another shock, which completed the destruction. All were killed with the exception of the few who had escaped after the first shock.

Men devoured raw meat like animals and fought to the death for crusts of bread unearthed in the wreckage of houses.

DYING OF THIRST MEN WALK STREETS.

Starving men dying with thirst wandered through the streets or threw common sense to the winds and dared insanity by gulping down salt sea water.

Bands of Messinians too weak to flee from the ruined city struggled through the valleys amid the debris crying out in their grief for bread and water. Scores fell and died in their tracks; others, unable to endure the suffering, committed suicide.

Women, rendered desperate by the wails of their infants and knowing that succor could not come in time to outwit death, dashed their children to death.

Insane men and women, their horrifying shrieks filling the air, scrambled over the wrecks of houses, praying and calling on the saints for mercy.

BIRDS OF PREY IN CLOUDS AT MESSINA.

Scenes of the weirdest nature were being enacted at Messina and other ruined cities. Grim messages reached Palermo to the effect that clouds of crows and buzzards had descended on the stricken district, having crossed the sea in response to some mysterious intuition of the disaster. In Messina the rescuers frequently encountered processions of naked persons bearing images of the saints. It was exceedingly difficult to deal with these frenzied survivors.

DIE GNAWING THEIR ARMS.

Dead bodies were found which bore mute testimony of the torture endured before death relieved their sufferings. Several of these persons died gnawing at their arms and hands, evidently delirious from pain and hunger. Other bodies brought from the ruins had portions of shawls and particles of clothing in their mouths and one woman had her teeth firmly fixed in the leg of a dead baby.

The archbishop of Messina was found, still living, in the ruins of his palace, for several days after the disaster.

Numberless charred bodies were found indicating deaths too terrible to contemplate.

SCORES OF DEAD ARE FOUND IN STATION.

In many cases the bodies were but slightly burned, death refusing an early escape to the victims. The features of these were terribly distorted.

The railway station at Messina, where many people gathered after the first shock, hoping to escape by train, was uncovered,

revealing scores of corpses packed together. The number of dead here was not even counted, the rescuers having more urgent work to do.

The military and naval authorities there, who were requested by the government to ascertain the names and number of the foreign visitors present in the city when the earthquake occurred, replied that the task was entirely impossible, since there was no material on which to work. The town simply was taken out of existence. Thousands of telegrams lie undelivered because there is no place at which to deliver them. The inhabitants are either dead or missing.

ANXIETY IN AMERICA.

The people of America, during the early reports of the Catastrophe were greatly concerned for many friends and relatives who were traveling in Italy and who had not been heard from for several weeks. This continued for many days but finally with the aid of the American Ambassador all were found, the last few being located at Taormina which escaped the earthquake.

The soldiers in Messina were obliged to shoot down looters in great numbers. The troops were rendered desperate by the crimes of ghouls, and General Fiera di Cassato issued orders to show no mercy to robbers. Many caught in the act were shot or bayoneted. Two soldiers guarding bread were killed by the famished quake mob in Messina.

FIGHT LIKE WILD BEASTS FOR FOOD.

Bands of famished individuals grouped among the debris in the hope of discovering food. The first of the searchers who were successful were attacked by others with revolvers and knives and were obliged to defend their finds literally with their lives.

The struggle was fierce. The famished men threw themselves upon each other like wolves and several fell disemboweled in defending a handful of dry beans or a few ounces of flour. One of the unfortunates was pinned to a plank by a knife while clinging to his hand was his little child, for whom he had sought food.

The guard of troops was wholly insufficient to protect the dead and dying from the ravages of ghouls and robbers. A number of fights occured between soldiers and citizens and the marauders, but the latter were no sooner suppressed in one place than they reappeared in another. The water supply rapidly became exhausted. The quake destroyed many of the sources.

Dogs went mad in a number of towns and attacked the people savagely.

Four million dollars was recovered at Messina from the ruins of the Bank of Sicily by Russian sailors and turned over to the Italian naval commander.

LOOTING BY MADDENED MOB.

Just as the British steamer Ebro was preparing to leave Messina with refugees an outburst of frightful cries was heard from the shore. The refugees on board saw a crowd of maddened persons of every age break into the custom-house. Some were naked, others half-clothed, and they all were mud-spattered and half-demented. Many were injured and bleeding. They sacked everything that came to their hands, seeking food, drink and clothing. Revolver shots were heard over the horrible din and confusion. Finally tongues of flame shot up in the darkness, showing that fire was completing the work of destruction.

This was only one of the many scenes of anguish and horror that could be seen from the decks of the Ebro. Messina was burning, and masses of flames in the darkness showed where fire was completing the destruction of the earthquake. A few skeleton houses here and there were all that remained of the once beautiful and prosperous town.

Ghoul-like figures flitted in the semi-darkness, risking their lives among the tottering ruins, not to assist the agonized suffering, but in the fiendish strivings to profit by the appalling disaster which had overwhelmed the city. They were robbing the dead and dying and acquiring possessions which they had no means of protecting or conveying away.

Prof. Ginochetti reported that out of seventy persons living in the same house with him only twelve were saved, and that for

twenty-eight hours these survivors were crushed together under the protecting arch of a window, not daring to move.

Another, Prof. Felici, related that he was in bed when the first shock happened. Almost immediately the ceiling fell upon him and he found himself lying in a kind of cell formed by the ceiling supported by the head of the bedstead, which was bent inward. The professor, in his night attire, managed to clear a way through the debris, and, seeing a portion of the main wall of the house still standing, supported by a mass of masonry which had fallen against it, he climbed on top of it and waited there for further shocks.

An interesting narrative is given by Prof. Ciaffi, who was living in the Plazza San Paolo. His wife was dressing when the shock occurred. She immediately woke her eight children, and, thrusting some garments on them, she and her husband dragged and carried them down the main stairs of the house, of which part of the walls already were falling.

FOOD FOUND IN WRECKED SHOP.

The family, barefooted and half clothed, took refuge in another piazza, where they found themselves surrounded by a high circle of ruins. The children were shivering half naked in the cold, and the professor and his eldest boy managed to climb out over the encircling pile of ruins and after some search found a baker's shop and wineshop, from which they took bread and a bottle of cognac.

In the meanwhile other survivors found their way to the same piazza. Among them were Prof. Radice and a young girl, the whole of whose family of five persons lay under the ruins of their house. The poor girl was stupefied by her misfortune.

Perhaps the most tragic note was struck by an elderly couple, who described how they were imprisoned in the lower part of the ruined house. They could only cry for help and heard no answer save other cries for help from the darkness round them.

LISTENERS CRAWL IN RUINS.

A number of specially picked men were silently and slowly crawling among the ruins at Messina, listening for sounds that

NATURE IN ALL HER DIABOLICAL DESTRUCTIVENESS.

Messina in the throes of earthquake, tidal wave and storm. The works of man amount to nothing when the resistless forces of nature are turned against them.

MESSINA—THE BEAUTIFUL WATERFRONT NOW A MASS OF RUINS.

This magnificent avenue fronting on the harbor of Messina contained public buildings, palaces and stores. All were destroyed.

might indicate the presence of wounded persons still unrescued. They had acquired such sensitiveness of hearing that they could detect the faintest sigh, and thus buried victims of the earthquake were often recovered.

The searcher on hearing a sound marked the place with a red cross and summoned the salvage squad, which hurried to the spot and unearthed the sufferer. Many were thus almost miraculously saved, the mass of debris having been prevented providentially from crushing them to death.

In some cases four or five bodies were discovered together, some dead and others living. Many of the rescued were in a terrible condition. Sometimes the mere exposure to the air would bring to a close a life hanging by a thread, and sometimes the sudden restoration to the sunlight brought on blindness.

One man who had been taken out of the ruins unconscious asked for bread when he recovered his senses and died while eating it. The soldiers who were present took the half eaten crust from the dead man's mouth and gave it to a starving sufferer who was lying near.

NEARLY ALL OFFICIALS KILLED.

For several hours after the first destructive shock Messina was absolutely without organized relief, for the reason that the municipal officials, the soldiers, the police, doctors and nurses by the hundred were either buried or drowned.

The first work of rescue was performed by volunteers from ships in the harbor and groups of heroic survivors, who, at great labor and personal danger, extricated many persons pinioned beneath the wreckage.

Messina's crying need was for doctors, clothing and food, and firemen to combat the flames that continued to ravage the city.

FOREIGN WARSHIPS AS HOSPITALS.

Doctors, nurses and firemen were hurried into the wrecked city, but the lack of food and water made the work of rescue difficult. The Russian and British warships at Messina sent crews ashore and the vessels were transformed into hospitals.

All the hospitals in Catania were crowded, and even the schools were converted into infirmaries.

The less seriously injured of the survivors of Messina were dispatched by the hundreds to Palermo.

Minister of Public Works Bertolini on arrival at Messina organized several corps of volunteers for rescue work.

TURN BACKS ON TORTURED VICTIMS.

Refugees, telling of their escape, related that after escaping from their ruined houses they waited in terror for the coming of light. They then made their way over the obstructions in the streets to the open places. They had to leave behind them under the ruins countless victims, who called for help in heartrending tones. It is asserted that probably half the fatalities occurred because it was impossible for the survivors to render prompt assistance. Not the least of the suffering was caused by the downpour of cold rain.

Some of the refugees from Messina passed through San Giovanni, Palmi, Scilla, Cannitello, Favizzana and Bagnara and found practically every one of the villages destroyed.

DEPUTY'S SEARCH FOR BROTHER.

Sig. Fulci, a member of the chamber of deputies from Messina, together with the members of his family, was also reported dead. The Fulci family was one of the most prominent in Catania.

Ludovico Fulci, also a deputy, refused to abandon the wreck of his brother's home. He remained there working with bleeding hands and half dead from fatigue, determined to remain until he found the body of his brother.

One of the survivors picked up at sea by the steamer Washington was a man named Francesco Lojacono. He was wounded and unconscious. On reviving he called wildly for his wife and children.

All efforts to quiet him were useless, and he insisted that the steamer put him ashore.

Finally he became bereft of his senses and, springing suddenly to his feet, he jumped overboard, still calling for his wife and babies.

He started swimming toward the land, but soon disappeared beneath the waves.

The British steamer Ebro entered Palermo from Messina with sixteen wounded, including Alfred J. Ogston, the British vice-consul at Messina. Mrs. Ogston lost her life.

DAMAGE ALL DONE IN 23 SECONDS.

Technical observations from the observatory at Messina indicated the earthquake lasted for twenty-three seconds only.

It was accompanied by remarkable atmospheric phenomena. The surcharged air was filled with sparks and flashes of flame, which flared up until the heavens seemed afire. The crest of the earth appeared suddenly to drop. These phenomena were followed by distinct lateral oscillations that threw the panic-stricken people off their feet as they rushed to the streets.

Another of these who escaped said:

"The earth seemed suddenly to drop and then turn violently on its axis. The whole population, who practically were precipitated from the houses rent in twain, were spun around like tops as they ran through the streets. Many fell crushed to death, and others, bewildered, took refuge for breath beside the tottering walls, where they soon met the fate of their companions."

The following graphic story was told by a woman who arrived in Catania from Messina badly injured:

"'Infernal' is the only word that will adequately describe the fearful and terrifying scene," she said.

AWAKENED BY HOUSE ROCKING.

"When the first shock came most of the city was fast asleep. I was awakened by the rocking of the house. Windows swayed and rattled and crockery and glass crashed to the floor. The next moment I was violently thrown out of my bed to the floor.

"I was half stunned, but knew that the only thing to do was to make my way outdoors. The streets were filled. Everybody had rushed out in their night clothes, heedless of the rain falling in torrents. Terrified shrieks arose from all sides, and we heard heart-

rending appeals for help from the unfortunates pinned beneath the ruins.

LIVES WERE DESPAIRED OF.

"Walls were tottering all around us, and not one of my party expected to escape alive. My brothers and sisters were with me, and in a frenzy of terror we groped our way through the streets, holding our own against the panic-stricken people, clambering over piles of ruins, until we finally reached a place of comparative safety. But this was not done before I was struck down and badly injured by a piece of furniture that fell out of the upper story of a house.

"All along the road we were jostled by scores of fleeing people, half clad, like ourselves. The houses seemed to be crashing to the ground in whatever direction we turned.

SEA CAME WITH ROAR.

"Suddenly the sea began to pour into the town. It seemed to me that this must mean the end of everything. The oncoming waters rolled in a huge wave, accompanied by a terrifying roar.

"The sky was aglow with the reflection of burning palaces and other buildings, and as if this were not enough, there suddenly shot up into the sky a huge burst of flame, followed by a crash that seemed to shake the whole town. This probably was the gas works blowing up.

"Eventually we reached the principal square of Messina. Here we found 2,000 or 3,000 utterly terrified people assembled. None of us knew what to do. We waited in an agony of fear. Men and women prayed, groaned, and shrieked. I saw one of the big buildings fronting on the square collapse. It seemed to me that scores of persons were buried beneath the ruins. Then I lost consciousness and I remember no more."

STUPEFIED WITH TERROR.

Refugees poured into Catania by trains, steamers and automobiles. They were half naked and stupefied with terror and suffer-

ing. Some of them appeared almost insane from the horrors through which they had gone. In the beginning they could only babble, "Messina has been devastated; the city has been annihilated." Little by little some idea of the indescribable horror at Messina was obtained from these unfortunates.

They declared that thousands of demented survivors were still wandering about among the ruins of the city. A wounded soldier said:

"The spectacle was terrifying beyond words. Dante's 'Inferno' gives you but a faint idea as to what happened at Messina. The first shock came before the sun had arisen. It shook the city to its very foundations. Immediately the houses began to crumble. Those of us who were not killed at once made our way over undulating floors to the street. Beams were crashing down through the rooms, and the stairs were equally unsafe.

SAW LIMBS MOVING HELPLESSLY.

"I found the streets blocked by fallen houses. Balconies, chimneys, bell towers, entire walls, had been thrown down. From every side of me arose the screams and moanings of the wounded. The people were half mad with excitement and fear. Most of them had rushed out in their night clothes. In a little while we were all shivering under a torrential downpour of rain. Everywhere there were dead bodies, nude, disfigured, and mutilated. In the ruins I could see arms and legs moving helplessly. From every quarter came piteous appeals for aid.

"The portion of the town down near the water was inundated by the tidal wave. The water reached to the shoulders of the fugitives and swept them away.

GREAT BUILDINGS CRUMBLE.

"The city hall, the cathedral, and the barracks crumbled, and churches, other public buildings, and dwellings without number were literally razed. There were 200 customs agents at the barracks; only forty-one of them were saved. At the railroad station only eight out of 280 employes have been accounted for.

"Many of those who succeeded in escaping with their lives are incapable of relating their experiences coherently. I questioned all who were in a condition to talk. Most of them told the same story. They said the first thing they knew they were thrown out of bed, and, amid crashing and falling furniture, managed to make their way to the street. Then in the blackness of night and amid a pouring rain that added to their horror and distress they rushed blindly away amid the crash of tumbling buildings and the shrieks and groans of those buried in the ruins. Many while trying to escape were struck down by falling balconies and masonry, and still many others lost their reason and are today wandering aimlessly in the open fields outside the city or up and down the ruined streets they knew so well.

"The looters and the robbers were shot down dead by the rifles of the soldiers."

CHAPTER II.

IN JAWS OF DEATH.

In the Jaws of Death, Yet Live—Some More Than Thrilling Experiences by Survivors—A Night of the Blackest Horrors—Men, Women and Children See the Lives of Their Dear Ones Taken from Them in an Instant —Some Single Survivors of Large Families.

Many of the survivors were white-haired, their hair having changed its color in a few days. Others went mad with terror and were able only to mutter incoherent ravings. Some were able to give more connected accounts.

Constantine Doresa, a London ship broker, was the first to reach London from Messina, where he had a wonderful escape.

He was staying at the Trinacria hotel with an English friend named Craiger. His bedroom was on the third floor facing the sea.

"It was a dark, still night, the coldest I ever felt in Sicily," he said. "I went to bed late after putting an extra covering on the bed. I was awakened without warning at 5:25.

BED RISES UP AND DOWN.

"The bed first rose up and then went down violently. I clutched the sides of the bed, which seemed to be falling through space for ages. Afterwards I estimated the time to be ten seconds.

"Then came a series of awful crashes; the roof was falling all around me. I was smothered in brick and plaster.

"I knew it was an earthquake. I had been in one before in Athens. Then followed terrific crashes, mingled with a continuous roar. I felt for matches, struck a light, and was horrified to find my bed on the side of an abyss."

Doresa discovered Craiger and from the ruins rescued a Swede and his wife. Amid the appalling surroundings they succeeded in reaching the quay side and getting aboard the Cardiff steamer Afonwen.

Doresa then organized a rescue party composed of the Afonwen's master, Capt. Owen, three of his sailors, and several Russian sailors. With Doresa and Craiger all returned to the Hotel Trinacria with ladders and ropes.

RISKS LIFE FOR CHILDREN.

On the balcony of a ruined building stood two little children crying for help. The building seemed ready to collapse at any moment. Second Mate Read of the Afonwen did not hesitate.

The children were directed to lower a string with a stone tied to it. They understood presently, and a piece of stone was seen coming down. Meantime Read placed a ladder against the lower balcony. Then he turned to one of his seamen, who was standing by, and said:

"Now then, Smith." "I shuddered," Doresa continued. "It seemed like sure death. Smith turned his quid in his mouth and without a word went up the ladder to the first balcony to the string which had been let down by the children.

"He attached a light line, which the children hauled up and tied it around one of the standards at the top of the balcony. By this means Smith hauled up a two and one-half inch manila rope.

SHINS UP BESIDE CRAZY RUIN.

"He then took off his boots in a trice, shinning up the rope beside the crazy ruin. I held my breath. I have read many brave deeds, but I never heard of one braver than Smith's.

"When he reached the top of the balcony he leaned over and shouted:

" 'Why, there's ten of them up here. I can't manage all of them myself.'

"Capt. Owens turned to Read. It was enough.

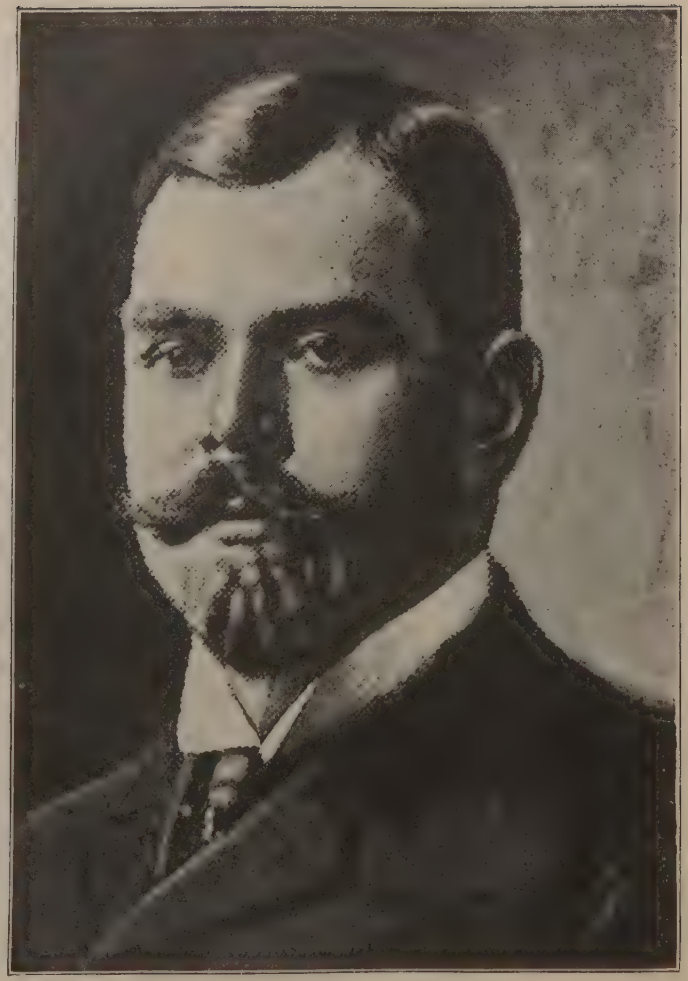
"In a second Read was shinning up the rope hand over hand. We watched him with fear clutching our hearts.

"There was a sigh of relief when we saw him standing beside Smith at the top of the building, which seemed to be rocking to its fall every second.

HELENE, QUEEN OF ITALY.

VICTOR EMMANUEL, KING OF ITALY.

The King and Queen Both Proceeded to the Scene of the Disaster and Each Took a Personal Hand in the Work of Rescue and Caring for the Injured Ones.



DR. ARTHUR S. CHENEY,
United States Consul at Messina who was killed.

MRS. ARTHUR S. CHENEY,
Wife of United States Consul at Messina, also killed.

THE AGONY AND PARALYSIS OF FEAR.

The inhabitants in their night clothes rushing from the crumbling buildings to safety, only to meet an awful death from falling timbers and masonry. Parents carrying infants clasped to their breasts trying to protect the little ones.

A STREET SCENE AFTER THE EARTHQUAKE.

Italian soldiers searching the ruins in hope of finding some unfortunate victims of the earthquake still alive.

"The men aloft soon got to work. One of Capt. Owens' apprentices rendered great assistance. I stood at the foot of the ladder to prevent its slipping.

FACE COLLAPSE OF BUILDING.

"The moments were flying. We did not know how soon the whole thing would collapse.

"An Italian workman stood staring at us. I begged him to lend a hand, but his face only assumed a more vacuous expression, if that were possible, and we were left to do the work ourselves.

"Read and Smith made their hawsers fast. Then one by one they lowered the cowering creatures who had been awaiting death.

"From that crazy height up to ten times the rope was lowered, each time with a child resting in a slip noose the sailors had forged.

THEN COMES STOUT WOMAN.

"Then came an old woman who was stout. We had a great deal of trouble to get her down, but managed it at last.

"There was one man among the crowd of survivors. Smith threatened to throw him off the building unless he helped to lower the old lady.

"At last the brave rescuers came down on the rope themselves. They had saved twelve people from certain death.

COOL AS IF ON GROUND.

"They worked as coolly as if they had been on the ground. They had been in imminent danger of their lives, yet when they came down they quite resented our congratulations.

"There was other work for us near by. We heard piercing cries from a woman buried to the waist in the ruins of a shop. The buildings around her were blazing.

"Slowly but surely the cruel flames were creeping nearer to her. Could she be saved?

"Capt. Owens gave a sharp word of command and soon Read was rushing to the Blake, a ship moored at the quay. In a few minutes he was back with a saw.

"He dashed through the raging flames and began with frantic energy to saw through the plank that held the woman fast. We waited in terrible suspense.

"Then with relief we saw the plank fall away and Read came through the flames bearing the rescued woman in his arms.

ITALIAN OFFICER APPRECIATES.

"Just at this moment an Italian officer came up. He witnessed this scene, and asked me the name of the ship the men belonged to, and said he would send an account of their splendid bravery to his government, and he hoped they would recognize it.

" 'Meantime,' he added, 'I can only thank them for their heroic efforts.'

"At this moment we heard cries from back of the Hotel Trinacria, which had been left standing.

RESCUE MAN AT HOTEL.

"We saw Sig. Cogni, a gentleman staying at the hotel, standing on a narrow ledge. We managed to rescue him.

"After rescuing others the party returned to the Afonwen, loaded a boat with food, and returned to the shore to distribute it.

"Capt. Owens left me in charge of the boat while he carried out the distribution. While I was guarding, five Italian soldiers came up and tried to seize it in order to escape to the mainland.

FIGHTS OFF HUNGRY SOLDIERS.

"I knew it was our only hope, so I drew a revolver and threatened to shoot the first man who touched it. They made off.

"Every moment was one of terror.

"There were from twenty to thirty shocks during the day.

"Prowling among the ruins were panic-stricken fugitives and escaped prisoners, the latter looting.

"I saw wretches hacking off the fingers of the dead to get their rings. Nothing came amiss for them.

VANDALS STEAL EVEN SHOES.

"In one case they raided a woman's shoe shop, and marched out with all the latest Paris and London creations.

"We were cut off from the world. All the wires were down, and the cables across the strait destroyed.

"We could not see the lights of Reggio, which told of destruction there. All things seemed to be returning to savagery.

"Then early Tuesday morning we saw some silent gray monsters tearing up the strait, and we could soon distinguish the ships' ensigns.

BRITISH FLEET HAD COME!

"The British fleet had come. It brought the first help from the outside world.

"It brought surgeons, medical appliances, food and clothing.

"As soon as the sailors landed they began to restore order. It was soon found that stern measures were necessary. Rifles were brought and the looters were treated with scant ceremony.

"Martial law had been proclaimed, and the thieves were shot at sight.

"The presence of these bodies of disciplined men had a remarkable and immediate effect.

RUSSIANS GIVE GOOD SERVICE.

"I must not forget to say a word about the Russians. Some Russian warships arrived in the afternoon of Tuesday. They immediately got to work.

"It was curious to notice the difference between them and our men.

"They did not have the machine-like discipline or our peculiar handiness, which enables our sailors to do everything that comes along, but they showed wonderful kindliness and sympathy.

"I watched the big Russian sailors gently handling little children and soothing their fears with simple words which, although in a foreign tongue, seemed to calm the little ones.

SLAVS GENTLE AS WOMEN.

"They were just as gentle with the wounded, handling them with almost womanly tenderness.

"As Tuesday wore on things began to assume an altered aspect.

The wounded, wherever it was possible, were taken to the ships and sent to Palermo and Naples.

"The dead were buried where it was possible. It will be days before many of the corpses can be reached. My local agent, for instance, who had my money on him, is buried thirty feet deep under the ruins of his office.

THOSE WHO ESCAPED IN HOTEL.

"It is stated in some of the papers that all the people in the Hotel Trinacria perished. As a matter of fact, the following is a list of the only people who were saved of the eighty in the hotel:

"Craiger, a Swedish woman, a gentleman and child, one chambermaid, one waiter, Sig. Cogni, Mlle. Karelech, the proprietor.

"It has been said that navigation of the strait of Messina has been rendered unsafe. I should like to correct that statement.

SHIPS GO THROUGH STRAITS.

"I saw several vessels go through Monday night, but there is no doubt that vast changes have been brought about in the bed of the strait. The Afonwen was lying at anchor on forty-five fathoms of water. When she weighed anchor Capt. Owens found there were only thirty fathoms.

"As to the people of Messina, I cannot say they did much to help. They seemed to be completely panic-stricken, but their need is great and their distress appalling. Having escaped death myself I can speak feelingly for the helpless people of Messina."

The above report is considered the most connected and complete story of the disaster.

FALLING WALLS KILL RESERVES AT WORK.

The commander of the Russian cruiser Admiral Marakoff, which arrived with refugees from Messina, told a thrilling story.

"Hearing at Agosta, Sicily, of the disaster," said he, "I hurried my ship to Messina. The city is literally nothing but a heap of ruins. Every building there has collapsed, but in many cases the outward shells remain standing.

"It is impossible even to give a faint idea of the desolation of the scene. Every now and then we heard the crash of falling floors and walls. This constitutes the greatest danger to the rescuers. It is not safe to approach any standing masonry. Men from my vessel had many narrow escapes, and I saw several terrible accidents to the brave Italian soldiers, who were doing more than their duty.

"We lost no time in setting about the work of rescue. We established an open air hospital on the shore, where we received and treated a thousand people, men, women and children. We also saved the safe of the Bank of Sicily with its treasure of $2,000,000, weighing two tons. I estimate the deaths at Messina conservatively at 80,000.

"The mind shrinks from contemplation of the present condition in the stricken city; that there are thousands of persons still alive in the ruins, and that countless numbers must die.

TWO BABIES PLAYING IN MIDST OF DEATH.

"I could relate pathetic stories without number.

"Under some wreckage inclosed in a kind of little cubby hole and protected by two heavy beams I discovered two little babies safe and uninjured. They were comfortable as possible, laughing and playing with the buttons on their clothes. We could find no trace of their parents, who undoubtedly lost their lives. Many little ones live while their parents are dead, and we saw many mothers with dead babies in their arms."

SOUND OF DISASTER LIKE THOUSAND BOMBS.

A young doctor named Rossi, at Messina, gives a vivid account of his experiences. His escape was remarkable, and by his calmness and energy he was able to rescue others from imminent death. The doctor was preparing to leave Messina by an early train Monday morning, the day of the disaster. "Suddenly the profound silence was broken by an extraordinary noise like the bursting of a thousand bombs," he says. "This was followed by a rushing and torrential rain. Then I heard a sinister whistling sound that

I can liken to a thousand red-hot iron rods hissing in water. Suddenly there came violent rhythmic movements of the earth and the crashing down of nearby walls made me realize the awful fact of the earthquake. Falling glass, bursting roofs and a thick cloud of dust added to the horror of the situation, while the extraordinary double movement, rising and falling at the same time, crumbled walls and imperiled my life.

"I rushed into the room where were my mother and sister, and, with a rope which fortunately I had with me, I succeeded in rescuing them. I was also successful in getting out of the house a number of other persons who had given themselves up for lost.

DRAG CHILDREN AND WOMEN FROM RUINS.

"Then some soldiers came and helped me, and together we dragged forth several women and children from the tottering walls of a half-destroyed palace near by. A few seconds later this building was demolished.

"There were scenes of indescribable horror in the streets and squares through which my party made its way. We finally gained the open country."

MAYOR TELLS OF HIS ESCAPE FROM DEATH.

Paolo Rizo, the mayor of Capriolo, after he escaped to Rome, gave the following account: He was in Messina on a pleasure trip that fateful Monday morning. He was awakened by the fearful roar of the first shock. The floor of his room fell, and, half conscious, he was precipitated into a mass of rubbish. His body lodged in a niche in a wall and he was pinned down by a heavy beam, his face being covered by a carpet that threatened to suffocate him. He managed to move the carpet with his teeth until he made an opening in the folds through which he could breathe.

The man lay in this position for five hours, expecting death at any moment. Had it been possible, he says, he would have committed suicide. Once hope sprung up in his breast. A man passed by and the mayor called to him. "What do you want?" asked the newcomer.

"What do I want?" repeated the mayor. "Isn't it clear? Help me get out of here." But just at this moment another shock came and the man ran away, leaving the mayor again alone.

Finally the proprietor of the hotel where the mayor had been stopping came and effected his release.

UNIVERSITY PROFESSOR WHO LOST SONS TELLS OF HORROR.

Dr. Palermo of the University of Messina escaped to Naples with his wife. The doctor lost two sons in the wreck at Messina. He told a thrilling story of the scenes immediately following the first shock. Said he:

"I was sleeping when thrown out of bed by the shock. The ceiling collapsed and the floor opened at the same time. I dropped through to the ground floor. A woman who occupied this floor escaped without injury, and my wife and I helped her search for her sister and son, whom we found dead.

"We remained all day and night alone and without help, keeping the rain off by planks. We were without food or drink, and the screams of those buried alive around us were terrible. Their cries mostly ceased during the night, but no one came to our assistance.

ESCAPE TO A WARSHIP.

"We were as if in a tomb lying alongside the dead bodies of our children. The wounded lying around, but invisible in the ruins, were weeping in despair or shrieking at every sound from without. When we finally escaped from the ruins we were taken by sailors to the warship Christoforo Colombo, which brought us to Naples.

"Messina is entirely destroyed. A hundred thousand men could save only a few lives, though the Palazzata, which is by the sea, was still standing when we left. The town hall was burning as we departed and fires were bursting out on all sides. We passed through streets that felt as if they were the bottoms of valleys, or climbed over the heights which were all that remained of the finest palaces of Messina."

The minister of marine received word that the steamships Taormina and Campania, with 45,000 beds and a large supply of provisions aboard had left Genoa bound for Messina. Other steamers also bountifully stocked, were on their way to the stricken cities from various ports.

Lieut. Wolffsohn, on board the steamer Theraspia, off Naples, wrote the following: "This steamer is crowded with refugees from Messina, bereaved men, starving women, weeping children, all with the stamp of a great fear still upon their faces.

"Their tales of the catastrophe and of their own escapes are astonishing." Here is the story of a man employed by a German cotton firm in the lost city:

"Messina is utterly destroyed. Nothing remained when I left but part of the citadel. A few soldiers are the lone survivors of the whole garrison, and here and there a house still stands, but ready to totter and fall at any moment.

"I was asleep when the first shock awoke me. I lighted my lamp, but as all seemed quiet I lay down to sleep again. Suddenly there came more shocks, each more violent than the other and increasing to terrific force. I jumped out of bed and tried to get out of the room.

HOUSE SWAYS LIKE COCKLESHELL.

"The house was swaying like a cockleshell and my door was jammed. I could not get out that way, so turned to the window. Tearing the sheets from my bed into strips, I hastily made a rope and lowered myself to the street. A family of five persons escaped from the house by means of my rope.

"No sooner were we in the street than the house collapsed. I tried to help in the work of rescue, but it was useless. The horror and confusion can hardly be described.

"All day I wandered, half dazed from the awfulness of the scene. No food could be gotten and I had only a few nuts to eat. The head of the firm, who lost his brother, had to go through the streets begging for bread for his wife and children. There was no organization in the work of rescue.

THE INHABITANTS OF A ONCE PROSPEROUS CITY.

Panic stricken refugees from the afflicted districts fleeing westward toward Palermo, carrying all they could save of their belongings.

A SCENE OUTSIDE THE EARTHQUAKE ZONE.

Survivors camped in front of a church. The old woman in front of the tent holding the crucifix in her hands is offering prayers for her dead family.

CONVICTS SING AND MURDER.

"The Messina prison was razed and the warders killed. Those of the convicts who escaped immediately unbridled their criminal instincts and prowled among the dead and dying, robbing and murdering unhindered. They cut off the fingers of the dead in their eagerness to secure the rings they wore. Nor were the wounded and helpless spared from this barbarism, but the looters hacked off the fingers of some who were still alive, paying no heed to their piteous cries for mercy.

"Freedom to some of the convicts, even under such frightful auspices, was so intoxicating that they strode down the streets singing songs of liberty as they butchered and pillaged."

The first act of these convicts when they gained their freedom was to exchange their prison garb for that of civilians, which they took wherever found, some getting the needed articles from wounded or dying men. Loot was their cry and they stopped at nothing, not even murder, to get it.

In the stillness of the nights shots were frequently heard which told of some soldier having discovered one of these bands of robbers and was making them pay the penalty of death.

Wherever possible in the daytime the thieves were arrested and later tried by court martial. Many were found guilty and sentenced to be shot the next morning.

One survivor tells of seeing a soldier happening on a man robbing a dead woman of her rings. He leveled his gun and cried "I give you three minutes to say your prayers." At the end of that time he fired, killing him instantly.

The Theraspia brought thirty Germans and 600 other fugitives, among them a German clergyman, with his child and his wife, who had her leg and her ribs broken in the collapse of their house. During the tragic voyage to Naples a woman gave birth to a child. Several of the injured died on board.

Dr. Gondo of Messina said he escaped by climbing over fallen roofs. The walls, he added, were falling in like houses of cards. A steam ferryboat in the harbor was lifted to the height of the quays by the tidal wave, then, as the water swirled back the boat

touched bottom, leaving it poised upright on the quay. Houses vanished with the suddenness of a dream.

SHIP BRINGS DESPAIR TO CITY.

Daylight showed nearly two miles of ruins. Steamers put out to cross the strait for help after the first shock of the catastrophe. Vessels from the opposite coast met them half way with the news that Reggio had vanished beneath the waters.

The steamship Colombo arrived at Naples with refugees late Monday night. An anxious crowd awaited the arrival of the vessel. As she neared her dock a voice shouted from end of the pier:

"Is Salvatore Coniardi there?"

"Yes," came the reply in a woman's voice from on board.

"Are you all safe?" was shouted.

"Yes," replied the woman.

"What of Messina?" shouted half a dozen voices on the wharf.

Aboard, over the rail of the steamer, a hundred arms were raised in gestures of despair, and deep cries arose:

"Messina is no more; nothing remains."

"How many are saved?" came in anguish from the pier.

"Only we who are here," was the despairing answer from the vessel.

OLD MAN CARRIES UNKNOWN BABY.

Then the gangway was lowered. The meetings between refugees and their friends and relatives ashore were pathetic, but more pathetic were the failures to meet. Those in the crowd on the wharf who did not immediately see those they sought rushed about calling their names frantically and staggered off in despair when they could not find their loved ones. One of the refugees, an old man, stood aside, silent, with a baby girl in his arms.

"Is she yours?" asked a woman.

"No; I don't know whose," he answered. "I found her lying in the ruins. No one claimed her, so I brought her here."

An officer of a torpedo boat, who saw the tragedy at Messina, said:

"My vessel was lifted thirty feet by the tidal wave. Another wave rushed in from the straits and instantly the sea seemed covered with corpses and refuse. When I raised my eyes nothing was visible save a vast cloud of dust, and near me the toppling skeletons of handsome buildings."

The steamer Therespia sailed again for Messina with stores. Many of the fugitives who arrived on her ran panic-stricken from the ship, in some cases even abandoning their children.

GREAT BRITAIN'S DIPLOMAT'S WIFE KILLED AT HIS SIDE.

Mr. Ogston, British vice consul, arrived at Palermo uninjured with his little daughter. He said he was thrown out of bed by the first shock. His wife rushed to the cot where their child was sleeping and snatched her up. They then ran downstairs and found the street door blocked by wreckage.

Escape that way was impossible, so they clambered on the balcony, which gave way, precipitating them to the street. Mrs. Ogston was killed instantly, but the child was unhurt.

Mr. Ogston picked up his daughter and ran at top speed to Municipal square. Here there were about fifty persons gathered. Mr. Ogston added:

"We quickly decided to make for the open country. We tore along the streets, while balconies, parapets, chimneys and walls toppled around us in a terrifying manner. The members of our little party were knocked down by falling wreckage from time to time—sometimes one and sometimes half a dozen altogether—until we were reduced to a dozen, and by the time we reached the open country only four of us remained."

One girl on board a steamer, her clothing tattered and torn, had saved a canary bird. She was a music hall singer, and had clung to her pet throughout the terrible scenes of devastation. The bird was the only happy thing on board the vessel.

SOLDIER'S STRANGE STORY OF ESCAPE.

The stories told by these unfortunate refugees are almost unbelievable. A soldier, Emilio de Castro, relates that on Sunday,

the day before the disaster, he was taken sick and was sent to the military hospital. Early Monday morning he was awakened by a tremendous roaring sound. He felt himself falling and thought he was in the grip of a nightmare. It seemed to him that he had awakened in hell, for the air was filled with terrifying shrieks.

The soldier soon realized, however, what was happening. His bed struck the floor below and he was still on it. It paused a moment and was again precipitated. He struck the next floor, but this gave way at once, and thus man and bed came down from the fifth floor of the hospital to the ground. The soldier was not injured.

BIG HOTEL BROKEN IN TWO BY QUAKES.

A remarkable story of the destruction of the Trinacria Hotel is told in a telegram received from Signora Carolath, a Hungarian opera singer, the leading soprano of a troupe which was giving a season of opera performances at the Vittorio Emmanuele theater in Messina.

After setting at rest her friends' fears for her safety and for that of several other members of the company who are well known in Rome, she describes her experiences as follows:

"The earthquake shock apparently broke the hotel building in half, one half falling at once, while the other portion, in which I was, remained standing unsteadily. My escape and that of the others in my part of the hotel was cut off, however.

MATTRESS SAVES LIFE OF OPERA SINGER.

"When I found that I could not get out by the stairs, which had fallen, I went to my room and, taking the heavy mattress from the bed, I threw it out of the window. Then I jumped out upon it. Although my room was on the third floor, two stories from the ground, the mattress broke my fall and I alighted without injury. Several of the other guests afterward escaped in the same way."

Signora Carolath found shelter later in a refugee camp in the outskirts of the city. The names of other foreigners who escaped safely when the hotel fell were not learned.

HOTEL RUIN DESCRIBED.

Among those saved on board the Afonwen was Edward Ellis, an English visitor to Messina.

"I was on the second floor of the Hotel Trinacria," he said. "When the earthquake began I was in bed asleep. It shot me out on the floor and then turned the bed on top of me. I managed to crawl out from under with practically nothing on me and made a frantic rush for the door, but found it impossible to open it.

"I gave myself up for lost. Both floor and ceiling went crashing down and I was left hanging to the door. The room seemed whirling round and round and great gaps opened in the walls. A moment later everything collapsed and the whole structure fell. I landed on a heap of mattresses, clothing and furniture, and though much bruised was not disabled.

"Right in front of me in the black darkness I heard moaning. I put out my hand and touched something horrible. When I drew it back my hand was colored crimson. Some one was dying there, but I was unable to afford any help.

"Gradually I worked my way out from the debris of the fallen hotel and finally was able to rise to my feet. I began to walk over ruins, but the earth was still heaving, and several times I fell. The thick dust was almost suffocating. All around rose cries for help. Two men rushed past me so frantically that I was again thrown down, but I got up and struggled on.

STRUCK BY WOMAN'S BODY.

"I felt that constantly I was treading on bodies, and perhaps on living persons. Once the body of a woman fell down on me from somewhere overhead.

"I suppose I had walked two hours when suddenly I went waist deep into water. A man helped me out and pointed in the direction of Marina. But my troubles were not over. The wild figure of a man plastered with mud rose up before me and barred my passage. He was clearly mad, and only after a desperate struggle did I get away from him.

"Next I found myself in a street where every house was on fire,

and I saw no way out until a building fell down and smothered the fire sufficiently in one place to afford me a path over the rubbish.

"Even then an enormous heap of wreckage lay in my way, which for some time I vainly tried to surmount. In my endeavors I fell into a deep hole, but in it I found some pieces of furniture and half-broken steps, which helped me at last to climb to the top of the heap.

"Weakened and exhausted, I slipped and began rolling helplessly down the hillside and was unable to stop until I went splashing into the sea. This was the end of my troubles, for I was picked up and taken aboard the steamer."

Achille Carara, agent general of the Steam Navigation company in Messina, gives an account of his experiences which throws a new light on the circumstances of the disaster in Messina.

"I was thrown out of bed by the quake," he says. "Frantic with terror I shouted to my wife, my children, and my servants, assembling them under the arch of the window. The house rocked, but remained erect.

"We dressed in the darkness and blinding dust while everything heaved about us. We staggered down the reeling staircase to the street which was choked with the ruins of the surrounding buildings. Masonry was falling, and the injured were shrieking from their tombs beneath the wreckage. The ground was split up everywhere.

"Horror was piled on horror. The inky blackness pressed upon us with here and there a flame shooting out from the wreckage.

"At daylight we found our way to the harbor, where the tidal wave had thrown the water fourteen feet above the quay and broken every vessel adrift. The harbor was full of the wreckage of cases and capsized skiffs, and four steamers which had been flung on the quay had refloated as the great wave drew back, and were hanging on their anchors. They were the Elbro, Drake, Varese, and another.

LATER RETURNS FOR RESCUE.

"We hailed the Drake and were taken aboard and well attended. Later the captain of the Drake sent a party with me to rescue my

relatives living in the north end of Messina. The houses of the British consul and chaplain were found to be mere dust heaps.

"I located what had been my brother's house, and after digging an hour with our hands, breaking a way through the fallen masonry, beams, rafters and broken furniture, we rescued my brother, his wife, child, and eighteen other persons.

"We found no trace of my father, mother, or aunt. All had been crushed under the ruins of three houses."

CHAPTER III.

THE DESTRUCTION OF REGGIO.

The Destruction of Reggio in Italy Across the Straits from and South of Messina—The Earthquake on Both Sides of the Straits and Under Its Great Depth—Great Fury of the Waters Caused by the Convulsions of Nature Under Them—The Population and Environs of Reggio.

If it is possible for the reader to conceive of one part of this devastated district suffering more than another then turn to Reggio the city "At the Toe" of Italy, a happy prosperous city of 50,000 inhabitants completely razed to the ground, its people dead.

We shudder on reading of a railway or mine disaster in this country where fifty or one hundred are killed and wounded; imagine then if you can forty or fifty thousand lives snuffed out in a few seconds.

Out of a total population of 50,000 not more than 5,000 escaped leaving 45,000 dead in the ruins of what was once a great city.

PARIS WRITER PAINTS VIVID PICTURE OF DEATH AND RUIN.

The special correspondent of the Paris Matin, who arrived at Messina after an adventurous journey on foot through the wasted Calabria region, tells a vivid story of the scenes of devastation.

"I arrived at last at Messina. My nerves will never recover from the atrocious impressions to which they were subjected, and my eyes will retain, as long as they remain open, the vision of death and devastation which oppresses them. A mournful silence covers the country like a funeral pall.

"I proceeded as far as Palmi by train, and thence afoot. Six or seven inhabitants accompanied me to Tropead, and I decided to reach Reggio at whatever cost. Two or three railroad firemen, cut off from home while at duty, by the catastrophe, were returning to seek news of the fate of their families. They preceded me, brandishing resinous smoky torches. We marched in Indian file

MESSINA HARBOR DURING THE TIDAL WAVE.

A fierce storm accompanied the tidal wave, lightning flashed and crashing noises filled the air. Big steel anchor chains snapped as if they were thread, ships crashed into each other wrecking some and sinking others.

RESCUERS AT WORK IN THE STRICKEN CITY.

The violence of the earthquake demolished the buildings in an instant, killing or burying those inside. This picture shows the completeness of the destruction and what little chance there was for escape.

Courtesy of the Chicago Examiner.

"CORSO GARIBALDI," MAIN STREET IN REGGIO.

The photograph shows the size of the city and style of architecture, laid waste by the earthquake.

SEARCHING THE RUINS.

Thousands of soldiers, sailors and citizens joined the work of extricating the wounded and dead from the wrecked buildings.

PALERMO.

Palermo, the metropolis of Sicily, with 273,000 inhabitants, military, judicial and ecclesiastical headquarters of the island, and the seat of one of the seven principal Italian universities. An ampitheatre of imposing mountains rises in the background. Thousands of American tourists vist Palermo each winter. The climate is ideal.

RED CROSS SOCIETY CARRYING RELIEF TO THE SUFFERERS.

Every store being destroyed, hunger seized the survivors, particularly the children, but thanks to the great hearts of all nations relief was speedily sent, and chief among the helpers was the United States.

through the tunnel from Palmi to Bagnara, holding hands and stumbling over ballast heaps. The roof of the tunnel was cracked everywhere, and now and then rocks fell in the niches of the trackmen. Whole families were encamped around wood fires and smoking torches. Many of them were wounded. Men, women, and children, stupefied by the catastrophe and crouching among the stones looked at us with a vacant glare, as if their thoughts were wandering.

"Some distance along we came upon families roasting sea birds, which had been killed by the tempest, and cast upon the beach. Others had the strangest objects packed in sacks. In reply to questions as to what had happened at Messina and Reggio, they made vague and desolate gestures and continued to gaze at us like stalled oxen. After two hours' march we saw Bagnara perched on the spur of a mountain overhanging the sea.

"The country house of the mayor, on the summit of the rock, was half tumbled into the sea, but the mayor was safe. Every house in the town and surrounding country was in ruins. Little palaces were open like cut pomegranates in sections. In one I saw tumbled beds and disordered dining-rooms. Seated on the broken wall was a man selling bread at exorbitant prices, amid a chorus of curses and maledictions. Another, demented, was trying to dig into the ruins with his fingers. How many dead? One thousand—two thousand—who knows?

"The tunnel beyond Bagnara was impracticable. An enormous portion of the mountain had fallen and totally obstructed the road. We were forced to walk in the sand, often up to our knees in water. Beyond the tunnel the track was torn and the rails twisted. Huge rocks and dangerous masses came rumbling down momentarily. We decided to climb the mountain and advance across the ravines of brushwood.

"Night fell; the rain was coming down in a deluge. My guides marched more with their brains than their legs. I followed mechanically, though ready to drop. At 11 o'clock we reached Favazzina, a hamlet of 300 inhabitants. Only seven persons remained. They were shivering under the shelter of a couple of sheets stretched across two olive trees. They asked us pitifully for

bread, but we ourselves had not eaten since the start, and we knew not what to answer; so we left them hopeless.

"After eleven hours we had covered only thirty-four kilometers, every step at the cost of the greatest exertion. Our clothes were soaked and the torches had burned out. At Scylla we decided to rest, but rest was impossible. The whole countryside, except to the north, was completely blotted out. Walls were standing, but the interiors had collapsed, carrying down the sleeping occupants.

"A railroad employe who saw his mother, his grandmother, and his three sisters perish before his eyes told me that the victims must be between 750 and 1,000.

TOWN SWEPT BY SEA.

"A few kilometers further on Cannitello presented a still more terrifying sight. Almost at the same moment it was overthrown by the earthquake it was swept by the sea. It is no more.

"The country is but a charnel-house, whence a horrible stench arises. All the houses are heaped into one pile of ruins under which the dead and wounded lie. The sea around about was covered with household articles and children's playthings. From the ruins muffled voices calling for help reached us time and again. I asked a fisherman the number of the dead and saved. 'The survivors—perhaps 5, 6 or 7. The dead—perhaps 2,000, 3,000, who knows?' he answered.

"The once prosperous San Giovanni was another awful sight. The tidal wave smashed the jetties and overturned the six moles and swept the entire passage. The railroad station, the wireless station, six ferry docks, and the hospital are all destroyed. Four thousand inhabitants are buried beneath the ruins.

"The witnesses of that terrible night relate that the sea rose up as though lifted by a subterranean explosion. Survivors here and there are huddled in wagons which were half buried in the sand by violence. They are wounded and naked. Not a soldier had arrived; not a morsel of bread remained. When we found them they were worn by a struggle over a few provisions they had discovered in a freight car, but these were now gone.

"Fifteen kilometers further we entered the tomb of Reggio. Those who saw Reggio a few weeks ago would not be able to restrain their tears. I wept like a child, as I saw outspread before me where the town had stood an ocean of ruins. Nothing was standing; all were dead; all had been killed. Palaces, churches, theaters, and banks no longer exist.

"The jetty with its two stations had been carried away to sea. A car was standing close at hand, against which a girl of 12 had been hurled. The girl's head was cut off and floated out to sea; the body hung on the door jamb of the car. The waters had poured down the Via Marina, cutting off retreat and drowning those who had not already been killed. The two other main thoroughfares, the Corso Garibaldi and the Corso Ascheneuse, were completely obstructed by enormous heaps of blazing ruins. I was stunned at the completeness of the disaster.

DEATH ON EVERY HAND.

"Never in imagination have I felt so strong an impression of death; not a soul living in this smoking charnel-house; not a human voice. It was terrifying silence. Ruins were piled upon ruins. Among the debris I saw furniture and women's clothing. A house cut in two revealed three stories, a red, very red, parlor bed, in which a man lay dead, crushed by a falling beam, a bridal chamber, from which the bride seeking to escape, also lay dead on the threshold; another, a parlor, in which there was nothing but a mirror and portraits of King Humbert and Count Cavour. I could bear no more. My heart bursting with grief and horror, I asked the eternal question: 'The survivors, perhaps 5,000 or 6,000; the dead, perhaps 25,000 or 30,000. Who knows?'

"I obtained a rowboat and crossed, under a beating rain, with death in its soul, the sinister strait, still agitated by the horrible crime it had committed."

200 BURIED UNDER CATHEDRAL.

Survivors from Reggio state that the scene after the first shock was appalling. Their experience in many respects was similar to

that of the inhabitants of Messina. People rushed into the streets in night attire only to be crushed down under falling buildings.

Many flocked into the cathedral according to the usual Italian custom during an earthquake, and were soon afterward killed as they knelt at prayer by the collapse of the cathedral dome. The cathedral was completely destroyed and more than 200 worshipers were buried in the ruins.

The handsome museum adjoining the cathedral, with its priceless collection of Roman antiquities, was also destroyed. The town hall is a partial ruin, the walls still standing. All the buildings adjoining the harbor, including the custom house, the barracks and many large warehouses, were washed away by the sea. A second shock destroyed the railroad station and buried all within it. All the railroad lines were torn up for miles, the rails being twisted and gnarled fantastically.

BABIES FOUND IN RUINS.

The personal accounts of the survivors obtained all go to confirm the first reports of the extent of the disaster, and they but add to the grewsome recital of suffering and pathetic inability tc help the injured. One feature of the disaster at Reggio is the large number of homeless children. In some cases little babies were found creeping about in the ruins, and it seems impossible to restore them to their parents even if the parents are alive. A sailor who went ashore at Reggio relates that during the work of rescue he was attracted by a sound of infant voices. Looking under a fallen beam he found twins about a year old in a basket. They were uninjured, and their clothing was of the best. They were not claimed.

One of the most thrilling stories of the destruction of Reggio was brought to Graco Marina by Signor Orso, prefect of Reggio. Signor Orso is the highest official on the island, representing both the King and the Government. Early reports stated that he was killed, but the prefect turned up at Graco Marina, fifty miles from Reggio, into which he staggered almost exhausted after a long tramp consuming thirty-six hours, each of which was filled with excitement.

Orso said he passed through a region of ruined villages and desolated lands in which the people seemed mad with fear. All through his terrible journey the weather was cold and stormy, and when the prefect reached Graco Marina he was half dead with hunger and exposure. His clothing hung in rags.

Orso had supported himself during his long tramp on herbs and fruits that he found along the route, and reaching his destination he had not even the strength to telegraph the government announcing the disaster which had overwhelmed the province entrusted to his care.

Another refugee from Reggio says that just before the catastrophe fully 400 persons were in the railway station. Most of them had already taken their seats in the train about to leave for Naples, the remainder being relatives and friends who were seeing them off, and the railway employes. While the people were saying goodbye the frightful earthquake shock occurred. Immediately the whole station collapsed, burying everybody beneath the ruins. Only two persons escaped.

A woman refugee gave the following account of her experiences at Reggio:

"As soon as I could get out of my house I ran in the direction of the water front. I noticed that the greater portion of the main thoroughfare of the city, the Via Garibaldi, was destroyed. A thick dust prevented me from seeing more than three feet in any direction. From every side I heard the cries of the wounded and the shrieks of the terrified women. I struggled through water and mud up to my knees and succeeded in gaining one of the docks. From there I was taken on board a cruiser in the harbor.

"While on my way down to the water, groping through the dust and darkness, a band of about 100 persons rushed upon me like maniacs. They were fleeing uptown. They separated me from my companion, whom I never saw again."

ANARCHY REIGNED IN STRICKEN REGGIO.

A few soldiers who escaped unhurt, impelled by an admirable spirit of discipline, organized patrols on their own initiative. They endeavored to protect the property left intact, but the criminals fought against them tooth and nail.

The numbers of these criminals increased to such an extent that the soldiers were on several occasions forced to open fire on them.

It was only after a pitched battle, in which several were shot and killed, that a semblance of order was restored.

RELIEF PARTIES HELPLESS; CITY CLOSED.

All entrances to the city, or what was left of it, were guarded by soldiers. Many of the survivors were lying exposed. The relief parties were unable to cope with the distress. The cries of the injured were piteous.

The city was divided into several zones, each commanded by an officer. Stores and food were landed and guarded by the military to prevent pillage by the famished populace.

36 RESCUE VESSELS CARRY OUT REFUGEES.

Shiploads of fugitives were carried out of the stricken zone to Naples, Palermo, Catania and other ports, and, according to the Minister of Marine, rescue vessels to the number of thirty-six centered in the Strait of Messina, and 5,000 soldiers were landed on the two coasts.

AN AMERICAN NEWSPAPER MAN'S TRIP TO REGGIO AFTER THE DISASTER.

I arrived after an arduous journey from Palermo. Throughout it was a strenuous struggle to push forward against the stream of fleeing survivors.

I found Palmi a scene of desolation, most of the town destroyed and all the houses uninhabitable. Of Palmi's 11,000 inhabitants 700 bodies had already been discovered. The constant spectacle that made me sad was the swarms of hungry children crying vainly and seeking their parents. Than this there is nothing more pathetic. I scarcely reached the center of Palmi when I turned to and helped the soldiers extricate two children from a wrecked house.

My first impression of the results of the catastrophe was the extraordinary apathy of the survivors. Literally they were so dazed

by the tragedy that they would not make any attempt to assist the rescuers.

I pushed on from Palmi to Bagnara and directed the organization of the first relief train from Palmi. In Bagnara 300 dead remained under the debris. The surviving population was famishing. No succor had reached Bagnara.

CALABRIANS FOUR DAYS WITHOUT FOOD.

On the third night two sharp earthquake shocks completed the wreck caused by the first titanic shock. I started on foot for Reggio, fifteen miles away, tramping with the troops. The most distressing feature of the disaster was the appalling disorganization of the rescue work throughout Calabria. Not a single morsel of food had arrived to relieve the famishing, despite the fact that it had been four days since the earthquake.

The spectacle in Bagnara horrified and unnerved me. Pestilence was inevitable unless sufficient help arrived immediately to bury the piles of bodies.

The survivors in Bagnara attempted to seize food, but the militia repulsed them. After walking three miles from Bagnara I entered the village of Favazina. There the same distressing incidents, the same shocking spectacle, was duplicated. At Favazina I found a boat to take me as far as Scylla.

After what I've seen I can sincerely exclaim "Merciful God, what horrors!"

ONE HUNDRED SURVIVE OF HAMLET'S 3,000 PEOPLE.

Hundreds of bodies lie in the wreck-strewn roads. It was a pity the yawning cracks in the earth didn't swallow them. I reached the hamlet of Canetello, where I found a hundred stupefied peasants, all that is left out of 3,000 inhabitants. All Canetello was literally destroyed.

Reaching the village of San Giovanni, I found English sailors from the warship Exmouth, whose captain merits praise for having established the first shore hospital in all the stricken region. The Exmouth's doctor, Burton, was assisted by Engineer Ranier

in attending the wounded. The hospital was improvised in railroad cars. Half of San Giovanni's population of 7,000 was killed. Here, like Bagnara and Palmi, there was gravest danger of an epidemic.

It seems an absurdity to attempt to describe conditions in Reggio. I saw hundreds of people frantically searching for food in the half-ruined stores, risking their lives.

It is pathetic to see the survivors clustered stupefiedly gazing at the ruins of their homes. Always there is the wailing of hungry children vainly seeking their parents. Reggio suffered two scourges. The seaquake destroyed the lower portion of the town and the earthquake ruined the higher parts.

The urgent necessities of the moment are: sufficient men to bury or burn the dead, immediate succor for the wounded and food for the survivors.

SURVIVORS SEARCHING FOR FRIENDS.

The old man sitting down lost every member of his family. He is the picture of despair and hopelessness.

WHOLE FAMILIES WERE BURIED UNDER TONS OF DEBRIS.

A residence photographed the day after the disaster.

THE ANGEL OF MERCY—THE RED CROSS.

The influence of Florence Nightingale and Clara Barton will endure for all time.

CHAPTER IV.

A CHAIN OF HORRORS.

The Destruction of the Other Towns Adjacent to Messina and Reggio—All of These Towns Located Between the Volcanoes Mount Vesuvius and Mount Etna, More Than One Hundred and Fifty Miles Apart.

Though Messina and Reggio suffered untold disaster by the violence of the terrestrial convulsions on that fateful morning, many other towns and villages in the district were also leveled and wiped out by the same shock. Those situated on the shores of the Straits of Messina received the most damage, the tidal wave adding to their burden of disaster.

Some stories by survivors show the overwhelming results of the catastrophe. One survivor said:

"The suddenness and completeness of the catastrophe was overwhelming. Of the 14,000 people living in Palmi only a few score were alive. 2,200 bodies were buried in the cemetery there in one day."

HOUSE WHIRLED LIKE WINDMILL.

The marquis Vincenzo Genoese, a refugee from Palmi, near Reggio, in telling of his experience at the time of the earthquake said that he was awakened by a tremendous roar and a severe shock. It seemed as though the house was whirling round, like the wings of a windmill. The wall of his dwelling cracked and through it came a cloud of suffocating dust. Stunned, but uninjured, the marquis tried to escape to the streets, but at first he found this impossible, as the stairs had collapsed with the first shock. Finally, after numerous efforts, he succeeded in getting out of a window and descending to the ground from the third story by means of a rope.

DRAGGED OUT EIGHTY-SIX DEAD.

Walking, he says was difficult, owing to the fact that the streets were filled with debris. He helped in the work of rescue and in a

short time had assisted in dragging from beneath the ruins in the street eighty-six persons, all of them dead. The face of every one of them, he says, showed the agony they suffered in death. Many of them had their arms across their faces, as though to protect themselves from the falling debris.

It was necessary to release the prisoners at Palmi and many of them escaped.

HUNDREDS WERE BURIED AT ONE TIME.

A naval officer on a tour of investigation gave the following graphic description of what he saw:

"I reached this town from the railway by walking alongside the broken tracks for half an hour. Not one house in Palmi is safe and the streets are full of ruins. The town, once the delight of artists, because of its beautiful sea view, was completely destroyed.

"The wretched inhabitants gathered around us as soon as I appeared, begging for help. They were hungry and thirsty but there was no bread nor meat and no shelter.

"A cart laden with bread for soldiers engaged in rescue work was pillaged by the hungry crowd, but with admirable self-denial the soldiers good-naturedly let them take everything. The telegraph office from which I am dispatching this message is a strange one. The former building was wrecked, so the few operators installed their instruments in a hut made from the branches of trees."

1,500 DEAD IN ONE SMALL TOWN.

It is officially stated that the deaths at Sant Eufemia, Calabria, from the earthquake, totaled 1,500. The injured exceeded that number. The ruins were consumed by flames.

SEMINARA, CALABRIA.

The mayor of Seminara, in the province of Calabria, states that his town was practically destroyed. Seminara had 4,000 inhabitants. The rescuers unearthed 100 bodies in a single day.

Reports from Pizzo, thirty miles west of here, declare that the

death list in surrounding villages reaches a total of 3,325. Many wounded persons are still under the wreckage.

LIPARI ISLANDS NOT DESTROYED.

The Lipari islands, which were reported to have disappeared with their population of 28,000, suffered little or no damage from the earthquake.

SCILLA.

"A tidal wave engulfed Scilla," said a priest, "and we were swept out to sea. We escaped death by clinging to bits of wreckage, and were finally picked up by a small boat and taken to Messina. The last we saw of what had been the site of Scilla was the angry water still rolling over it. I don't think any others escaped. I don't think there was a coast town in Calabria that was not practically destroyed."

SAN GIOVANNI, CALABRIA.

The town of San Giovanni, close to Reggio, was swept by a tidal wave which penetrated 700 yards inland.

TONTELEONE, CALABRIA.

Tonteleone, in Calabria lost 1,800 dead, and many more injured.

GAZZIRI, SICILY.

Gazziri, Sicily, it is stated, lost thousands.

BAGNARA, CALABRIA.

Bagnara, in Calabria, with a population of 5,000, was practically annihilated, with one-fifth of the inhabitants reported dead.

The following towns were also destroyed: Seminara, Castellate, Polistena, Cinque Prondi, Mamertina, Simpoli, San Procopio, Pizziconi, Stefanoconi, Catona and Rosalo.

RICH FARM LAND IS NOW A WILDERNESS.

The enormous stretches of the richest farm country were transformed into a wilderness. Great fissures seam the land, water

courses were changed, overflowing farms and making swamps of what were formerly the garden spots of Calabria and Sicily. In other places springs and streams dried up.

Valleys were filled up by giant landslides and the whole topography twisted and torn by the quake's titanic and ruthless hand.

The net loss in a commercial and agricultural way worked a permanent and severe loss to Italy's material prestige.

The number of lives lost in the earthquake horror will probably never be known for the reason that thousands upon thousands were buried in the ruins which took fire and burned, obliterating every means of knowing how many were in the houses at the time. Some members of families may have been away from home, while others may have had visitors; this coupled with the fact that no census had been taken for many years adds to the confusion and makes an accurate estimate of the number killed absolutely impossible. It is generally conceded, however, that the number killed was between 200,000 and 250,000.

CHAPTER V.

MESSINA—A GIANT TOMB.

A City of the Dead—A Vivid Picture of a Once Prosperous City, now a Necropolis of Its Inhabitants—Buried Under Mountains of Powdered Brick and Stone, Lime and Mortar—An Eye-witness Paints a Pen-Picture of Terrible Destruction.

Bulwer Lytton, afterwards Lord Bulwer, the celebrated English writer, many years ago wrote a book entitled "The Last Days of Pompeii." This masterpiece of the English language tells a magnificent tale of the sufferers at Pompeii when that town was overwhelmed by lava from Vesuvius. This book lives today and every day new generations are reading this wonderful story which tells of the loss of 20,000 lives and the destruction of a city.

Mr. H. R. Chamberlain of New York, a well-known American correspondent and writer visited Messina a few day after the earthquake and his facile pen has given us a story of death and suffering, ruin and devastation, that will live forever and is worthy of a place in literature along with Lord Bulwer's work.

Mr. Chamberlain's story is as follows:

"A tiny fraction of the earth's surface readjusted itself to the changing forces of nature the other day, and a few score thousands of the insignificant creatures who built their habitations thereon were buried beneath the ruins of their frail dwellings.

"That is one point of view of the incident which has drawn the attention of the human race to the spot which is blessed and cursed with the most lavish beauty of scenery and climate that is vouchsafed to man.

"The more human aspect of the event which obtrudes itself upon all the senses—even the reeking atmosphere of death as I write—is that we are in the presence of the most dramatic, the most stupendous tragedy in the history of mankind.

"It is easy to register the loss of 160,000 to 250,000 lives blotted

out in the space of a half minute, and to record the fact that nine-tenths of the buildings over an area of about 7,500 square miles have been destroyed; but neither pen nor camera can give a faintly adequate impression even of the residue of utter desolation which nature left.

CRUSHING FUTILITY OF DESCRIPTION.

"I have had experience with grave disasters and in the depicting of so-called important events, and I arrived here four days ago with the expectation that with the aid of a well equipped photographer I might be able to give a fairly comprehensive idea of the effects of the great earthquake. I had not been half a day in Messina before I abandoned that ambition.

"Every hour has added to the crushing futility of the effort. I shall set down, therefore, merely some scattered notes, hastily gathered in the center of the vast necropolis, and leave to the camera the principal record.

"It is true that half the population within a radius of about eighteen miles from San Giovanni, which roughly is the center of the devasted region, perished.

GREAT CHANGES UNDER THE SEA.

"In the area thus included about half is land and half water. The greatest structural changes of the earth undoubtedly occurred beneath the strait of Messina.

"The dead in Messina and Reggio, the two towns worst afflicted, number considerably more than half the original inhabitants. The mayor of Messina estimated that city's victims at 108,000. The figures for Reggio are approximately 28,000.

"There remain heavy death rolls at Palmi, San Giovanni, Scylla, Gallina, Bagnara, Galati, Pellaro, not to mention scores of smaller villages. The exact total never will be known, but there is little hope that it will fall below 200,000, and a quarter of a million probably will be nearer the truth.

HOUSES HUDDLED CLOSE TOGETHER.

"It is an ineradicable custom of the Italian race to build its habitations, even in the smallest villages, crowded and huddled together, as if space was so valuable that light and air must be sacrificed to it. Their so-called streets are narrow lanes, giving passage to single vehicles only, without provision for pedestrians.

"This was not true of Messina, yet even here the streets averaged less than forty feet in width; the buildings, including private dwellings, were in solid blocks with never any space between. Squares and open spaces were rare. Such construction in an earthquake country is nothing less than a death trap. To this more than to the violence of the earthquake convulsions are due the phenomenal proportions of the casualties.

"San Francisco thought she suffered from an earthquake of the first magnitude. It was child's play compared to this cataclysm. Messina was shaken, as a terrier shakes a rat, until she dropped bleeding and lifeless into her own dust.

NO TWO ACCOUNTS AGREE.

"I have asked many to describe what actually happened in that fateful half minute. No two impressions agree.

"One man said it was like being rolled inside a hogshead down a steep, bumpy hill. Some say it was incredibly violent, a swift yanking from side to side, followed by equally rapid upheavals and depressions. Others reverse the process.

"Some speak of the nauseating effect of that up and down motion, but the peril and the struggle to escape were too compelling to give way to mere dizziness.

"It is not improbable that fully half the dead succeeded in reaching the street before death overtook them. If they had gone to the tops of their houses instead of to the ground they would have stood a better chance.

MESSINA'S STREETS TO BE GRAVES.

"There are miles and miles of residential streets here piled full from end to end with a conglomerate mass of stone, brick, mortar,

dust, and general debris as high as the level of second story windows. Those who followed their natural instincts and rushed outside were literally stoned to death. Their bodies lie on the pavement, beneath ruins of their homes, these to be their final burial places.

"It is hardly worth while to give more versions of that bitter hour. I will refer to but one, the most intelligent that I have heard given. Dr. Francesco Dentice, chief of the cabinet of the prefect or governor of the province, was one of the fortunate ones. He lived in the aristocratic quarter of the town some distance back from the sea. His house did not fall and he and his family survived unhurt.

FULL VIOLENCE ON IN A SECOND.

"He happened to be awake when the first tremor came, but there really was scarcely a second's warning before the full violence of the convulsion was upon them. A great terrifying roar or series of subterranean thunder claps made more hideous the jumping, dancing, battering and flinging about which everything movable received.

"He was flung from bed before he could get on his feet voluntarily. He called the others and all managed to get downstairs, while the shaking continued with ever increasing violence. They were delayed slightly in leaving by an injury to an aged aunt, whom they were obliged to half drag, half carry with them.

"The last and worst paroxysm was finishing as they reached the street, and to this delay probably they owed their lives, for they escaped the danger from falling masonry.

"The house was almost on the corner of a small square and to that they hastened.

LAST BREATH OF A DYING CITY.

"There they stood in utter darkness for two hours, listening to the death throes of the dying city. There were occasional gleams of flame from several directions, but the torrents of rain which fell quenched these.

Courtesy of the Chicago Examiner.

REGGIO—WATER FRONT PALACES, FACING ON STRAITS OF MESSINA.

This beautiful water front suffered destruction by both earthquake and tidal wave.

VESUVIUS DURING THE LAST ERUPTION.

Daring Americans scaling this mountain of destruction and death, overlooking Naples, right into the jaws of its crater. American women are the most daring tourists of the world.

REFUGEES SEEKING SAFER QUARTERS.

The man at the right wearing cap, is an army medical officer.

TAORMINA.

One of the very few towns in the vicinity not destroyed or damaged. Taormina is on coast between Messina and historic Syracuse. The foot of Mount Etna is very near Taormina which is a popular resort for Americans.

Courtesy of the Chicago Examiner.

SOLDIERS CARRYING INJURED VICTIMS ON STRETCHERS.
This picture tells the tragic story of the awful calamity.

"They were joined from time to time by struggling fugitives from houses bordering the square until they numbered twenty.

"I asked Dr. Dentice and many others what was the effect on them of the black terrors of those two hours of suspense before the dawn. Did they lament; did they cheer each other with sympathy; did they abandon themselves to despair?

"All who were able to give an intelligent account of that dreadful time of waiting said the same thing.

STAND DAZED AND UNCOMPREHENDING.

" 'We did nothing; we stood silent in the rain, dull, dazed, half stupefied. I do not remember feeling any keen emotion, not even of fear. I think we all passed into a condition of submissive indifference.

" 'With the slow coming of daylight our faculties awakened. The gloom revealed little until actual sunrise; then we strove to make our way to the lower part of the town and to the sea front. We found, to our astonishment, that we were prisoners. Every street leading from the square was piled twenty feet high with impassable ruins.

" 'We imagined that we alone were victims of this isolation and we looked for the speedy coming of soldiers and relief parties. We had no suspicion of the truth until two hours later, when I saw a priest a little distance down one street. I shouted to him to know what was the situation elsewhere.

FINDS WORDS OF PRIEST TRUE.

" ' "Messina is no more," came back the answer. Even then I failed to comprehend the extent of the disaster, but I began to struggle over the débris toward the shore. I reached it after about an hour; then I realized the priest had not exaggerated.'

"The cable has told you something of the horrors of those first hours. I prefer to write only what I have seen and heard of the tragedy—for the drama is by no means finished and some of its present aspects are far more dreadful as a comprehensive spectacle

than the multitudinous and paralyzing experiences of the thirty-two seconds during which nature accomplished all her purpose.

"When I arrived in Naples the city was in mourning. Half the population seemed to be in the street watching with evident grief and sympathy the stretcher laden automobiles which dashed back and forth bearing the injured from the water to the various hospitals, permanent and temporary. I boarded a battleship which conveyed me to Sicily.

STROMBOLI STILL BELCHES FIRE.

"Stromboli, the most sensitive of the three volcanoes, which form a triangle around the tenderest spot known to exist on the earth's surface, was belching smoke, stones, and lava when we passed the next morning.

"Etna, beyond, was lazily puffing steam from its black lips.

"Another twenty miles brought us to the entrance of the straits of Messina. The whirlpools of Charybdis were scarcely visible. The tall lighthouse stood firm, apparently, on the point of the cape on the Sicilian side.

"Scylla, also picturesque in the dazzling limelight, lay calm and placid where it has lived a peaceful existence since time immemorial. We approached within a mile of the shore and I could still see nothing wrong.

SEES PARODY OF ARCHITECTURE.

"I was standing on the bridge of the warship, and the executive officer beside me had been gazing long at the shore through a telescope. Presently he handed me the glass with a silent gesture of despair. I looked and understood.

"What appeared to be dwellings and warehouses were a parody on architecture, which at a distance served to draw attention to the heaps of ruins over which they stood guard.

"We passed into the strait, and San Giovanni was the next of the large towns to come in sight. It, too, presented the same illusion on a distant view, only to disclose the dreadful reality as we drew nearer.

"Reggio, beyond, soon revealed its dead nakedness through the glass, but we turned into the beautiful harbor of Messina, which was just at hand.

SHIPS OF MANY NATIONS THERE.

"Many ships, flying the flags of half a dozen nations, hid at first one of the most delightfully located cities in all the world. Again the aspect from the ship was that of a prosperous center of commerce and industry.

"Even when we had a clear view of the town itself, we looked in astonishment on what seemed to be the magnificent white façade of fine warhouses and business blocks, which line the quay in a great curve a mile and a half in length. To be sure, there were gashes and gaps here and there, but the general effect remained.

"Behind we surely saw the closely built buildings of an important city. Smoke that certainly did not come from factories or dwellings arose in ominous columns in the still air at more than a dozen points.

"That we were gazing at a dead city, at a necropolis fashioned and peopled with corpses by nature in scarcely more than the twinkling of an eye was almost beyond belief.

WALKS IN WORLD'S CHARNEL HOUSE.

"We went ashore, landing on the half sunken stone quay depressed several feet below its level of a week before. As soon as the formalities of martial law had been complied with I plunged behind that curtain of stone—in another moment I stood in the world's charnel house.

"I shall not attempt to describe what I saw. I thought I would get a general idea of the extent of the hopeless expanse of ruin. Lines of streets were easily identified. I began to make my way. It would be rough work even for a mountain climber.

"One clambered, now up, now down, sometimes coming to the street level, but more often two stories above it. The foothold always was precarious—now on a bit of furniture, a brick, a corner

of granite, a prayer book, once on the keyboard of a piano which clanged discordantly but more often in the universal white powder of ground up plaster.

DIFFERENT FROM FIRE RUINS.

"The ruins of an earthquake are entirely different from the ruins of a fire. Walls and twisted iron occupy little space compared with the whole material of construction combined with the contents of the destroyed buildings.

"Messina, like most Sicilian and southern Italian towns, was of tremendously solid construction. There usually was a facing of brick or stone and behind this a wall of rubble—a mixture of mortar and small stones—of enormous thickness. Three feet of this material was nothing unusual.

"The forces which nature brought to bear upon this construction show in the result that the buildings might well have been made of sand in the same quantities and held together between surfaces of cardboard. This explains why the ruins of Messina make such an enormous mass. The buildings averaged four or five stories in height and the scrap heaps that remain are at least two stories above the street level, including the material in the roadway itself.

"Another peculiarity struck me at once. An earthquake has usually some general direction—north and south, east and west, or between these points. Not so this convulsion. Débris fell in all directions, invariably into the street unless the front walls failed to give way in whatever direction the buildings faced.

"It was a vertical motion; apparently that is the most destructive. A horizontal shaking loosened everything, then a violent tossing throughout sent the whole construction to the ground. Several survivors have told me that they were bounced from their beds three feet into the air several times before thy could get to their feet.

"It will be readily understood that progress on my tour of inspection through this mass of débris was extremely slow. A quarter of a mile an hour was all that could be accomplished. There were miles upon miles of such scenes.

NOT A TENTH OF RUINS SEEN.

"For hour after hour I have clambered about until utterly exhausted, but have not seen a tenth part of the ruins of Messina. Everywhere rescue parties, soldiers, sailors, and firemen are still at work.

"The incessant cry: 'Is any one there?' 'Is any one there?' will ring in my ears many days.

"I saw several dragged back from death covered with that everlasting mantle of white dust which made them look like living, moving plaster figures. Hundreds must have been literally smothered in it.

"Some were almost naked and for them the blanket dust has warded off additional suffering of cold, for the nights were frosty.

RUINS OF $10,000,000 CHURCH.

"In the early part of my first exploration I reached the ruins of what had been the finest cathedral south of St. Peter's itself. It stood facing a little parklike inclosure where were an elaborate fountain, palm trees, kiosks, and resting places.

"The church had been in the form of a Latin cross 305 feet in length and across the transepts 145 feet in width. It had passed through various vicissitudes since its construction was commenced 810 years ago.

"It was damaged by fire in 1254, and it suffered seriously in the earthquake of 1783. Much of it had been rebuilt from time to time.

"Much wealth has been lavished upon it at various periods in its history. No less a sum than $760,000 was spent upon the high altar alone in 1628, and Messina estimated that the noble structure with its contents of priceless relics of art and antiquity represented the enormous value of $10,000,000.

"The roof had been supported by twenty-two granite columns, which are said to have once belonged to a temple of Neptune near Faro in Roman days.

ROYAL DEAD BURIED IN CRYPT.

"All these are prostrate and in pieces. Many royal bones were in the vaults, including those of Alphonso the Generous, who was buried there in 1458, and Queen Antonia, widow of Frederick III. of Aragon.

"The treasury was rich in goldsmith's work of the fifteenth century and in jewels, and probably these will eventually be recovered.

"The interior aspect of this great basilica, like all else in Messina, was of utter destruction. In one corner I came across the discarded garments of several convicts showing that some escaped prisoners from the penitentiary used this shelter to change their betraying uniforms for civilian clothes during their brief career of pillage.

SOLDIERS BURIED IN BARRACKS.

"The largest buildings in Messina and some of the finest were the various barracks occupied by troops, for this was an important military headquarters. They are all in ruins. I forget how many thousand soldiers still lie buried beneath their débris, but the proportion of those who escaped is less than 25 per cent.

"The priests of the city, and there were many, suffered even more. A prominent ecclesiastic assured me that nine-tenths of them are dead.

"The doom of the church buildings is absolutely complete. I am told not a single sacred edifice remains standing in all the afflicted area. Five hundred in a single diocese are prostrate and the total number destroyed is nearly 1,000.

VIEW OF RUINS BY MOONLIGHT.

"I went last night for a brief view of the ruins by moonlight. The full Sicilian moon is brighter than all other moons—or perhaps its effulgence was enhanced by that vast expanse of calcine powdered chaos.

"I have looked upon other dead cities—cities that had been swept away by fire. One or two such sights have seemed to express the last word of destruction.

"Desolation in black is appalling; desolation in white pierces the soul.

"I sat upon a block of granite about twenty-five feet above the original level of the street. The city lay silent about me, its jagged lines softened little by that wonderful light. In front rose the mighty head of Mount Etna, black in the moonlight save for a tuft of white rising slowly from the crater. And the rest of the scene?

"The camera cannot depict it, nor can any poor words of mine. Memory alone will preserve the impressions of that hour.

"I realized as I had not before that the cold finger of annihilation had touched this fair city, and that Messina must be marked off the map of the world.

SILVER LIGHT GROWS STRONGER.

"The silence became oppressive and the ghostly silver light seemed to grow stronger. The only movement was the slow waving of a knotted sheet tied to an iron balcony on a half destroyed wall a few yards away.

"Some poor creatures had slid down this improvised means of escape and had almost certainly been overwhelmed by an avalanche of falling walls, for there could not have been time in that half minute for them to reach an open space.

"But one did not think of the fate of individuals. It was difficult to chain the imagination to the still existing world of the twentieth century. It was easier to believe a sudden transmigration of the soul had flashed one's spirit to a dead and desolate planet.

"The frowning volcanoes alone seemed real and living. The desolation and loneliness grew almost tangible.

FACE OF A FAIR YOUNG GIRL.

"The weirdness was becoming unbearable when I happened to glance down at my feet and the spell was broken. There lay among the rubble the photograph of a young girl.

"Her smiling face, rich with the dark beauty of her race, looked up at me. Probably her crushed and mangled body was not far beneath my feet. I could stay no longer.

"The saddest incident of this whole catastrophe happened the day following the great quake. A party of Russian sailors found in the center of the town the rear wall of a four story house still standing precariously. A foot or two of the third and fourth floors remained, and upon these narrow ledges were clinging two women and three children crying for help. There were no ladders and rescue seemed impossible.

SAILORS MAKE HEROIC RESCUE.

"Brave blue jackets did the heroic thing. One stood on another's shoulders against the outside of the wall while a third, carrying a pick, climbed over them and, using his implement as an ice pick, drove it into the mortar high above his head. By this means he pulled himself up to the windowsill, released his pick, and used it again in the same way to gain nearer the window above, and finally reached the terror stricken refugees high in the air.

"He lowered them with a rope to his comrades below, then slid down himself. The little party assembled in the narrow courtyard prepared to depart and one of the sailors was wrapping his jacket around one of the almost naked children. At that moment the tottering wall fell upon them and killed every one, the brave sailors as well.

SEARCH FOR LIVING IN RUINS.

"I stopped for half an hour to watch the dramatic climax of a rescue operation which had been going on for forty-eight hours. It was in ruins piled forty feet high adjoining the principal theater in Garibaldi street.

"One morning a faint response was heard deep down in the débris to the constant cry of the rescue parties: 'Is any one there?' The original building had been a solid one—six stories of stone and mortar. Its destruction had been as complete as if a rock the size of the house had dropped upon it from the sky and then rolled

HER MAJESTY THE QUEEN OF ITALY AND TWO OF HER CHILDREN.

The Queen accompanied the King to the stricken district and the noble work she did in caring for the wounded endeared her not only to her own subjects but won the applause of the entire world.

CAPRI PEASANTS AT THE TOWN WELL.

Notice the girl balancing the earthen water vessel on her head while she is filling another.

away. It seemed impossible that anything could remain alive beneath that apparently solid mass of pulverized walls, blocks of granite, and a few splinters of wood.

WORK ON THROUGH NIGHT.

"But a cry of a human being was heard and fifty men set to work. They dug valiantly for hours above where the voice came. They seemed to get no nearer and night came. Searchlights were brought and the work went on.

"Next morning the location of the sufferer was fixed more definitely. They could talk with him, and he told them he was not much hurt, there were a few inches of space about his head, and his hands were free. He pleaded not so much for release as for drink and food.

"The dust was suffocating and he feared he would choke if they came closer. The soldiers forced a pipe down through the débris and the imprisoned man succeeded in reaching the end of it. Beef tea and brandy were poured down in succession.

"The gratitude that came in response was as heartfelt as if the poor fellow was already in the free light and air instead of crushed down beneath twenty feet of ruins.

THIRTY HOURS MORE REQUIRED.

"That additional twenty feet amid material impossible to excavate by ordinary methods required another thirty hours to conquer. The impalpable powder which filled every crevice and more solid material slipped back almost as fast as it was taken out. Besides, it was necessary to proceed with the utmost caution for the victim's sake.

"It was just as the rescuers came in sight of the poor fellow that I happened to climb over that section of the débris. A few moments apparently would effect his release. A stretcher was hastily brought to the entrance of the little tunnel which had been driven through the side of the excavation.

"And then, when safety was in sight, the treacherous sides of the great hole began to slip, and in a few seconds the man was buried anew.

"There was a cry of horror on all sides. A dozen soldiers buried their faces in their hands and wept.

MEN OFFER TO RISK LIVES.

"The downpour of powdered lime and stones stopped for a moment. Suddenly the officer in charge cried: 'Who will go in with this rope and fasten it beneath his arms underneath the dirt? It may mean death, for if the dust comes down again it will mean suffocation for whoever goes.'

" 'Let me go! Let me go! I don't mind what happens to me!' were cries from almost every man in the detachment.

"A noose was quickly made in a stout rope and a little young private went quickly into the bottom of that suffocating funnel. He dug away with his hands around the head of the victim. He found, fortunately, that a small arch had protected him from the worst of the last dust slide.

"In a few moments the rope was fixed and a dozen men dragged the poor creature into freedom. He shrieked with pain under the rough treatment which the emergency made necessary, but a waiting doctor in a hasty examination could find no serious injury.

STRANGEST HUMAN BEING EVER SEEN.

"The strangest human spectacle I have ever seen was this plaything of the earthquake. There were just two spots of color upon him, and those were his eyes. There was a look in them such as I have seen but once before; that was in the eyes of three or four miners who had been buried for twenty-four days in a Pennsylvania coal mine nearly twenty years ago.

"The time of terror and even despair had passed for him. A stupefied indifference, more pathetic than suffering, was the only emotion they showed as he turned his gaze slowly upon the eager faces about him. Even his eight days' beard was white as paper after they hastily tried to brush that awful dust from his face.

"They did not stop to minister further to him, but struggled with many a painful jolt down the crumbling sides of the hill which had so nearly been his tomb, and hurried him away to the nearest Red Cross hospital.

LOSES FEET TO GAIN FREEDOM.

"One poor woman whom the rescuers reached on Friday was found with her feet pinned beneath an enormous mass of masonry. To release her with any appliances available in Messina would have required many days. She herself suggested that her legs be amputated. It was done, and she will live.

"The most ghastly sight still remaining is in the principal business street—Garibaldi. The side wall of a high building still stands over the edge of a bit of flooring. On the fifth story there dangles the leg of a dead woman. High in the air, in full view of all who pass, it hangs, but to reach it is impossible. The next sharp shock of an earthquake probably will throw down the wall.

"I do not like to dwell upon the grewsome features of this disaster. One gets used to the constant passing of corpses borne upon stretchers; the long rows of dead in trenches cease to arouse much emotion.

STEPS ON DEAD HAND.

"I shall not soon forget, however, an experience of three days ago. I was stumbling along over the ruins piled two stories high in what had been the middle of a street in the center of town. My foot slipped and landed upon something soft. I looked down and saw that I had inadvertently stepped upon a dead man's hand.

"A party of rescuers heard a faint raucous cry of 'Maria, Maria!' coming from way down in the great pile of rubble. They thought it the voice of a sufferer in delirium, and they began to dig. They worked for two hours, and finally reached a bird cage containing what had once been a bright plumaged bird, now bedraggled and dust covered, but still voluble and lively. The diggers were so exasperated they yanked out the cage, and one of them suggested they wring the worthless creature's neck.

"But the removal of the cage uncovered a human hand. The hand moved. They fell to work in greater earnestness, and presently they dragged from the dirt two living women. The doctors at the hospital said both would recover.

"A weekly newspaper, the Telephone of Messina, published the day before Christmas some sarcastic and sacrilegious verses in protest against the local communal fees, which were heavy. The last few lines were in the form of the prayer to the infant Christ on Christmas Day in this sense: 'O, little child, true man, true God, for the love of thy cross let us hear thy voice. Thou that knowest, to whom nothing is unknown, send us an earthquake as a sign.'

REGGIO TORN TO ATOMS.

"Scarcely half the story has been told when the fate of Messina is recorded. The actual earthquake was more violent on the opposite side of the strait, in beautiful Calabria. The damage was less in the loss of life and material ruin only because there was less to destroy.

"Reggio, the capital of the province, which comprises the toe and instep of the Italian peninsula, was a thriving city of about 50,000 persons. It was less pretentious than its neighbors nine miles across the water, and its buildings were more modest in size. A considerable number of two story structures in Messina escaped serious damage, but not so in Reggio. Nature, in a rage, flung about the ill fated town until scarcely one stone remained upon another.

"A great change has taken place in the foundations of the coast line and of the sea in front. Some soundings taken by a British warship opposite Reggio show where the charts indicate a depth of more than 1,500 feet, there now is shallow water.

DEAD ESTIMATED AT 28,000.

"The latest and best estimate I could get of the victims who lie entombed in the gray rubbish heap which ten days ago was a bustling little city places their number at 28,000. Their burial is less complete than at Messina, where the masses of ruins are higher, owing to the greater size of the buildings, and the atmosphere of death had become thick with threats of a coming pestilence.

"The grewsome problem of the dead has become a nightmare. For the first three days no attention was paid to it, and rightly.

Hundreds of corpses lay scattered about in full view among the ruins. There were many lives still to save. Moans and cries for help arose on every hand from the imprisoning débris. Every energy of the few thousand rescuers then at hand was devoted to their succor.

"My ears are weary with accounts of the prodigies of the work, the marvelous escapes, the pitiful failures to save when success seemed possible, and fresh tragedies from hour to hour. All these deserve to be remembered, and they would be in the story of any disaster usually ranked of the first magnitude. They are swallowed up today in the general flood of horrors.

NUMBER OF DEAD UNCOUNTED.

"Later there was a sufficient force at hand to begin the work of removing from sight the surface results of death's harvest. No records were kept, even of the number of bodies dealt with. They were taken hastily to the shore, loaded swiftly upon ships, carried out to sea, and committed to the waves. Thousands were thus disposed of.

"Now there is an army of workers, and the work of saving the living is almost finished. A few hundred soldiers have been assigned to the task of digging graves—not ordinary graves, but great trenches, each to accommodate 200 or more of dead.

"I wandered into a small garden inclosed by high walls through the gate of which passed a constant procession of stretcher bearers. The burden upon each was a half concealed human figure. The inclosure adjoined the ruins of the great barracks beneath whose débris the bodies of 250 soldiers still were entombed.

"SALMI—130" THEIR EPITAPH.

"The garden has been the recreation ground of the soldiers. Four trenches had been made or were still being dug. One already had been piled into a mound. An officer was painting upon a rough wooden cross the inscription 'Salmi—130.' This he presently stuck into the ground at the head of the finished grave.

"At the bottom of the second trench, fifty feet long, eight feet

wide, and ten feet deep, there lay already a closely packed row of bodies, upon each of which has been thrown a shovelful of quicklime. Another layer of corpses, just arriving, was being placed above them.

"Off in the corner of the inclosure a great fire was burning, fed with the clothing and other effects of the dead, thrown there before the bodies of their owners were committed to the earth.

"The ruins of Messina are still peopled by more than 50,000 dead and must be left to the purifying influences of the same force we call nature, which wrought all this destruction. Man should not attempt to cleanse so vast a charnel house.

"When I say that no man has been able to traverse even a third of the clogged and barricaded streets in nine days some idea may be formed of the nature of the catastrophe.

"So Messina died and was buried. I cannot say more. Leave her to her fate. Let her dead bury the dead.

"Her name must stand hereafter in the vocabulary of all tongues as a synonym of the transcendent horror of human suffering. I have given but fragmentary, inadequate translation of the greatest human documents written by God or the devil, with a single stroke of his pen. But let it stand."

CHAPTER VI.

THE BROTHERHOOD OF NATIONS.

Deeds of Daring, Valor and Heroism—Soldiers and Sailors of All Nations Work Side by Side in the Ruins, Rescuing the Imprisoned and Caring for the Wounded—Burying the Dead—The Work of the Red Cross—The King and Queen of Italy and Their Rescue Work—Personality of the King—His Reign.

If ever a Twentieth Century invention proved its usefulness that of wireless telegraphy did in this hour of need. The steamer Erbo was just leaving the harbor of Messina when the shock and tidal wave came. She put back and picked up a load of refugees, then left for the nearest city, Palermo. Her wireless telegraph operator succeeded in flashing the news of the disaster to some British warships in the harbor of Syracuse about forty miles away. After passing the dreadful news to some Russian warships also in the harbor, these ships started at once for the scene of the disaster and arrived about noon Monday. These vessels poured hundreds of blue jackets and soldiers into the stricken city and began the first real work of rescue. Order was restored, property protected and help for the wounded promptly furnished. The Russian ships arrived late the same afternoon and the French ships the next morning. All the vessels were turned into hospitals, and every man and every craft, of whatever kind, gave all they could spare and more, to help the wounded and feed the starving.

The Brotherhood of Nations was no idle phrase in this hour of distress for here were sailors and soldiers of the Czar striving side by side with American, French, British and Italian to succor and help the afflicted Italians in their own fateful land.

With courage and daring they scaled tottering walls to rescue unfortunates unable to extricate themselves and in so doing faced death many times every hour. Little children whose parents were crushed beneath the ruins were rescued, soothed with kind words and tenderly cared for.

One prominent Italian newspaper in speaking of the work of these men said:

FOREIGN SAILORS GIVE ALL.

"In the relief work the officers and men of the foreign warships have been untiring, and their courage is beyond words. The crew of one ship gave up every thing they possessed for the benefit of the refugees and practically forgot rest and sleep for more than thirty-six hours in their devotion to duty."

ORIGIN OF THE "SOCIETY OF THE RED CROSS."

After notable services in our War of 1861-5, Miss Clara Barton sought rest and health in Europe, but Providence led her again and she was introduced to similar work in the war of France against Prussia.

At Geneva she was waited upon by representatives of the "Society of the Red Cross," who had heard of her remarkable work for the Union cause in the Civil War, to solicit her counsels and aid in behalf of the sick and wounded of both armies. She knew nothing of the Red Cross Society—had not even heard of it.

They explained to her that "the object of the Society, as set forth in the articles of the Geneva Convention of August, 1864, was the exemption from capture, and the protection, under treaty, of those who were taking care of the wounded on battlefields, and also such inhabitants of invaded territories as gave them shelter and assistance. It undertook to care for wounded men wherever they fell, no matter to which of the belligerent armies they belonged."

This was precisely the character of the service which Miss Barton had rendered in the Union army at home, and it won her heart at once.

The society had adopted a flag "which was to be recognized and protected by all belligerents; and also an arm-badge corresponding to the flag to be worn by members in active service. The design chosen for the flag and badge was a red cross on a white ground, simply the colors of the national flag of Switzerland reversed; that bearing a white cross on a red ground. The Association took its name from its flag—the Society of the Red Cross.

All the nations were invited to join it, each national society to be responsible for the work of its own country. It was largely through the influence of Miss Clara Barton that the United States became a participant in this noble work.

In one of her public addresses advocating that our country agree to the Red Cross Convention, Miss Barton said: "There is not a peace society on the face of the earth so potent, so effectual against war, as the Red Cross of Geneva."

With the San Francisco and the Italian earthquake the Red Cross found noble work without a cruel war. The Red Cross of today suggests less of the cruel slaughter of men in war than its founders at Geneva had in mind.

The Red Cross Society in America, through its State Branches and Committees, made a careful and systematic canvass of the entire country and raised many hundreds of thousands of dollars which was forwarded to the National Red Cross Society and by them to the Italian Society to help relieve the awful condition of the many thousands of sufferers through the disaster.

THE ROYAL RESCUERS.

Immediately after the news of the great loss of life and property was forwarded to Rome, the King and Queen of Italy started at once for the scene of disaster where they arrived on the following Wednesday.

An eyewitness thus described their visit to the afflicted district:

"One cannot find words of sufficiently high praise for the conduct of the King and Queen. His Majesty grasped the situation in an instant and set to work all the powers he controls to alleviate the horrors of the situation by active participation in the work of actual rescue as well as by his orders issued to his officers and others.

"Before Their Majesties had gone more than a few rods from the dock they found themselves among the ruins with the dead all about them. Even the dying pinned beneath walls and masonry, heard the wild cries of welcome mingled with the chorus of wailing, as a great mob of half distracted men and women crowded

about the Royal couple and followed them as their guards made a way into the ruins.

"The Queen became faint from the sights and sounds about her and faltered for a moment, but bravely recovered herself and, close beside the King, marched into the kingdom of death. Within a few minutes as they passed among the dead she spied a little child lying amid the ruins.

"Her Majesty rushed over to the small bruised body, bent down and exclaimed, 'The poor baby lives,' and picking him up, almost ran with him back to the dock, where she placed him in the hands of surgeons. The child was terribly bruised and cut but survived.

"The King made himself dear to all his subjects, especially to those in the earthquake zone, by his prompt and personal aid in times of disaster. This makes plausible a story told by one of his companions, who said that as the royal pair and the crowd surrounding them made their way through the ruins a man pinned under a great block of stone and supposed to be dead raised his head, repeated the cries of acclaim and dropped back dead.

"There is a deep coating of mud all over, and Their Majesties walked through it in their work. The Queen was frequently affected to tears by the sight of the homeless, helpless women who followed her, crying for pity, half crazed by their misfortunes. If she looked upon them they threw themselves upon their knees in the mire and with clasped hands prayed for her help."

KING AND QUEEN GO WITHOUT SLEEP.

The government was alarmed at the risks the King and Queen were voluntarily encountering, Emmanuel repeatedly being forced to dodge falling walls. Both the King and Queen donned coarse working clothes and entered the ruins frequently at the head of the rescuing parties. The King had but a few hours' sleep after arriving on the scene, and was scarred and worn down by his harrowing experiences.

"It is not as a Queen, but as a woman, that I am here," said Helena, to some one who mentioned her rank.

It is a deplorable tendency for mortals to always question the motives of each other. Throughout the history of the World, no doubt, great men and women, including Kings and Queens, have been unjustly criticised for acts that made for the best, for all mankind.

By some it may be argued that the action of the King and Queen of Italy in hastening to Messina and Reggio on the first news of the catastrophe was a clever and spectacular bid for popularity, and that their presence on the scene of the disaster was superfluous.

In reply to this, it may be mentioned that it needed the presence of a man possessed of authority, such as the Ruler, to assume the direction of the work of rescue and relief in the first days of terrible confusion and chaos, following the destruction of Messina and Reggio.

The survivors were in many cases completely bereft of their reason. Hundreds of police and thousands of soldiers had been killed by the destruction of their barracks, while every jail and penitentiary was emptied of its prisoners and convicts, who availed themselves of the occasion to plunder the dying and the dead.

Add to this, the absence of water and of food, the ruined buildings flaming in every direction, the moans and screams of the injured and of the demented, and one may possibly picture to one's self the inferno in which the strong and masterful hand of a King alone, whose authority was unquestioned, could initiate the work of restoring some semblance of order and of organizing relief.

Moreover, the arrival of the King and Queen on the scene gave to the survivors of the population of Messina and Reggio the assurance that they were not being abandoned to their fate, and that the latter were engaging the sympathy of their countrymen and of the government at work in their behalf.

The cable dispatches indeed, have mentioned that in one or two of the stricken towns and villages on the coast of Sicily, and on the mainland in the vicinity of Reggio, the appearance of the King was the first intimation to the survivors they had not been deserted, cut off as they were from all communication by the destruction of telegraph wires and railroad lines.

The presence of the Queen, too, was of incalculable benefit in

allaying terror and in soothing the terror-stricken populace.

The King and Queen of Italy hastened to the scene of the disaster immediately the news thereof reached Rome, and spent ten days at Messina and at Reggio, directing the work of rescue, distributing food, drink and clothing among those who were perishing of hunger, thirst, and exposure, and with their own hands tending the wounded and the dying.

While they were engaged in this work of mercy the ground still rocked under their feet, the many shocks which occurred during their stay in the stricken regions, though inferior in intensity to the original seismic disturbances, being nevertheless sufficient to bring the already tottering walls and damaged buildings to the ground with a crash, thus adding to the destruction, the loss of life and the panic.

The Queen, in fact, in endeavoring to arrest a panic of this kind in one of the temporary hospitals at Messina, was considerably hurt and bruised, and it was this that caused the King and the physicians on the spot to insist upon her returning to Rome, which she did with much reluctance, and only after it had been pointed out to her how much she could accomplish there in organizing arrangements for the welfare and future of those who have been crippled and rendered destitute by the earthquake, and above all for the numbers of children, many of them badly injured, who have been orphaned.

It is on occasions such as these that monarchs in modern times show their mettle and demonstrate that they are not such useless and costly factors in European life as some people would have the world believe.

While the recent earthquake horror in Sicily and southern Italy has surpassed in magnitude all these visitations of Providence within the last hundred years or more, it is worthy of note that whenever they occur in a monarchical country it is the sovereign who is ever first upon the scene and that one never hears of the presence on such occasions or of the assistance of those agitators who profess to champion the cause of downtrodden humanity, making a profitable business thereof.

Surely the recent earthquake in Sicily offered to certain people with socialistic tendencies an unrivaled opportunity of putting into

execution some of their doctrines and professions of compassion for suffering mankind.

Courage in the face of danger is a virtue the possession of which even the bitterest foes of monarchy have rarely been able to deny to royalty.

It might seem, therefore, almost superfluous to say anything about the pluck displayed by the King and Queen in hurrying to Messina, although knowing full well that the first of the seismic disturbances would be inevitably followed by others.

As a rule, people seek on such occasions as these to escape from the earthquake zone. For the earthquake is a thing to which no one ever becomes indifferent. The author speaks from experience.

I have lived for months together in places where earthquakes were of weekly occurrence, and where everything breakable on the shelves had to be kept wired. But one never becomes accustomed thereto. The earthquake gets on the nerves, and the more of them you experience the less you like them.

That at the moment when there was a universal *sauve qui peut* from the stricken district the King and Queen should have hastened to the scene, betokens an indifference to peril that would excite a great deal more praise and commendation were not Europe accustomed to conduct of this kind on the part of its rulers.

Italy's monarchs have been particularly conspicuous in this respect. Thus, when four years ago the southern portion of the province of Calabria was visited by an earthquake, or rather a series of disturbances of this kind, which destroyed nearly all the trade and industry of the province, reducing a quarter of a million of people to destitution and killing outright thousands, Victor Emmanuel hastened from his château of Racconiggi, in northern Italy, to the scene of the disasters, and would have been accompanied by his consort had she not been at the time on the very eve of motherhood.

In doing this, he was following in the footsteps of his father, who some twenty years ago, when the cholera was raging with such intensity at Naples insisted, in the face of the opposition of his ministers, upon hastening from his country seat at Monza, near Milan, to the scene.

Meeting the cardinal archbishop of Naples in the hospital, by the

bed of the dying, and on being lauded and thanked by the prelate for coming, he cut short his expressions of gratitude by the remark that it was "the trade of Kings" to endeavor to succor and to bring comfort and relief to the people confided to their rule in moments of danger and of distress such as these.

In fact, the attitude of Humbert and of some of his brother rulers during great epidemics of this kind led to the remark that cholera hospitals had become in these modern times the battlefield of monarchs. The latter have very rarely nowadays the occasion of displaying their bravery under fire.

For the possibility of their captivity, or of their being killed by some stray projectile, constitutes so great a political and dynastic handicap to the fortunes of their army, that their presence at the front is always discouraged, and even opposed.

They take an opportunity, however, of giving evidence of their courage in times of pestilence, and of epidemics, such as those of Asiatic cholera and of the plague, when their visits to the hospital bring comfort to the dying, cheer to the sick, and much needed encouragement to the doctors and nurses.

Emperor Nicholas, and his father, the late Alexander III., as well as his surviving consort, Czarina Marie, Emperor Francis Joseph, Emperor William and his parents, have all distinguished themselves in this fashion; while Empress Eugénie atoned for many of the shortcomings laid at her door by the manner in which, on the occasion of the great cholera outbreak in France in 1866, she visited all the hospitals at Rouen, where the disease was raging with the greatest intensity; while on another occasion, during a particularly violent epidemic of smallpox, she did not hesitate to go through the hospitals in Paris affected by the malady, in order to encourage the doctors and nurses to remain at the post of duty, although by so doing she risked those good looks and that beauty which constituted her principal, if not indeed her only, claim to sovereignty.

Nor would any reference to European monarchs in this connection be complete without a brief mention of the widowed Queen Marie Amélie of Portugal, who, having rendered herself immune from diphtheria by inoculation, with the object of removing the popular prejudice against this form of vaccination, was wont until

the murder of her husband and her eldest son a year ago to visit the diphtheria wards of the Lisbon hospitals each week.

She showed an even still greater degree of bravery at the time of the last outbreak of the bubonic plague in Portugal. While it lasted, she appeared daily in the hospitals, and herself acted as the nurse, and attended the deathbed of a young physician who succumbed to the malady while ministering to the stricken.

She is a trained nurse and a full fledged-physican, being the only occupant of a throne who is entitled to add the mystic letters of "M. D." to the list of her dignities.

During the terrible inundations that spread so much ruin and destruction in the dual empire of Austria-Hungary in the autumn of 1851, and again in 1862, and finally in 1879, Francis Joseph himself hastened on each occasion to the scene of danger as soon as ever news reached him of the disaster, personally directing the work of rescue and of relief, and saving with his own hands many people from drowning, at the peril of his own life.

Napoleon III. acted in an identically similar fashion during the great inundations that devastated the south of France in the summer of 1856, and established in this manner a far greater hold upon the regard and good will of his countrymen than by any other achievement of his eighteen years' reign.

Indeed, the pictures showing him engaged in taking off women and children from floating wreckage, and from the roofs of submerged farmhouses, in the midst of storm, pelting rain and wind, and at much personal risk have always appealed far more to the popular imagination, and also to the best sentiments of the public than the masterpieces of great painters representing him in the act of directing the operations of his army, and plucking victory from defeat on the battlefield of Solferino.

AUSTRIA GIVES HELENA HONOR.

Emperor Francis Joseph conferred the grand cross of the order of Elizabeth upon Queen Helena of Italy in recognition of her "Self-sacrificing and heroic labors" in connection with the earthquake in Calabria and Sicily. The decoration was accompanied by an autograph letter.

CHAPTER VII.

THE FLOOD OF GOLD.

The World's Offerings—Sympathy from All Nations—Warships to the Rescue—Mighty Fighting Ships Turned into Floating Hospitals—Supplies of All Kinds Rushed to the Afflicted People—Humanity's Work for Humanity's Sake—Italy's Sorrows Are the Sorrows of the Whole World—The One Great Human Duty of the Hour, Help Italy.

The response of the world to Italy's cry for help was heeded around the globe in a manner unprecedented. Thirty-six warships flying the flags of many nations, a peaceful armada, were dispatched at once and later were joined by the great American fleet of battleships who were making the world-famed trip around the globe, making a total of over fifty mighty fighting machines turned into a mission of mercy and help.

Riding at anchor in the harbors of the devastated cities were many of these "Engines of Mercy" turned into hospitals to care for the injured, or distributing points for supplies to cover and succor the survivors.

No race had a monopoly on charity as the uttermost ends of the earth contributed funds. The monarchs and peasants of Europe, the coolies of South Africa and the yellow nations of the East all sent from their treasure and their mites.

Nothing was more inspiring to the stricken nation than the golden song the cable sang as the money flowed into Rome every minute. The prayers of the Italians included the words "United States" for no other country gave more speedy or generous succor.

AMERICA SENDS THE FIRST SUPPLY SHIP.

The supply ship Celtic was loaded with 1,500,000 rations intended for the battleship fleet when the news of the great disaster reached this country and on orders from the government was immediately dispatched to Messina. This was the first relief ship to start for the stricken isle, and her supplies were not eaten by the

Courtesy of the Chicago Examiner.

EARTHQUAKE SURVIVORS IN IMPROVISED QUARTERS.

Scene in the hills back of Messina after the disaster, showing how the refugees erected tents of blankets, quilts, etc.

IN CALABRIA AFTER THE EARTHQUAKE.

Survivors and tourists watching the troops tearing down an unsafe church steeple.

American sailors but by suffering survivors of the Calabrian and Sicilian disaster.

The second relief ship to the suffering Italians was also an American vessel, the Culgoa, a supply boat of the U. S. Navy. This vessel was with the battleship fleet, two days in advance, and on instructions from Washington was instructed to provide all available stores and supplies for the destitute and suffering.

The third United States vessel sent to the stricken district was the gunboat Scorpion which arrived at Messina loaded with supplies and hospital necessities a few days after the earthquake. President Roosevelt's message to congress, given in another chapter, and practical form of sympathy expressed by the American people in their liberal contributions to the relief fund is without a parallel in the history of the world.

It bespeaks a realization of a stupendous calamity and prepares to meet an appalling situation with unbounded sympathy and generosity.

It made the United States the leader in the movement to relieve and succor the hungry and homeless survivors of the world's greatest disaster and to care for the sick and injured that multiplied in numbers with each report from points of refuge.

SALVATION ARMY HELPS ITALY'S SUFFERERS.

As soon as the magnitude of the awful disaster became known, the Salvation Army through its headquarters in London and all its branches throughout the world began collections for the earthquake sufferers; the supply ships were chartered, loaded promptly and rushed to Italy, the head officers of the army superintending the work.

THE WORLD'S CONTRIBUTIONS.

The following table shows the amount contributed by the various nations, the United States being the most generous.

United States Leads with $3,600,000 Sent for Earthquake Sufferers of Sicily and Calabria.

United States	$ 3,600,000
South America	2,000,000
England	600,000
Spain	400,000
France	560,000
Egypt	22,000
Balkan States	20,000
Switzerland	180,000
Australia	160,000
Russia	150,000
Belgium	160,000
Japan	84,000
Germany	60,000
Turkey	40,000
Austria	32,000
Italy (collected)	2,000,000
Total	$10,228,000

It must indeed have been a grand sight and one which will live forever in the hearts of the Italians to behold the mighty ships flying the flags of every nation steaming into her harbors loaded to the gunwalls to help her in her hour of need.

AMBASSADOR GRISCOM ASTONISHES ITALY.

Griscom, who represents the United States at Rome, astonished the people of Italy with the promptness and expedition with which he handled the situation. Within four days after the earthquake he had chartered the large ocean steamship "Bayern" loaded it with supplies of all kinds, hired one hundred doctors, many hundred nurses, placed them on board the ship in charge of attaches from his own office and under the direction of the King of Italy it started at once for Messina. To accomplish this Ambassador Griscom spent over $200,000 and it took a small army of workmen

of all kinds, working day and night, to collect a supply and put them aboard the vessel.

For his work in connection with relieving the distressed survivors and the promptness with which he handled the matter the King of Italy publicly thanked him.

The Italian parliament when it convened shortly afterward also added the nation's thanks to Mr. Griscom and the United States.

The women in society and diplomatic circles at Washington, D. C., attracted much attention by their efforts to provide relief for the victims of the earthquake.

Wives of the ambassadors and cabinet ministers took a personal interest in helping to increase the fund and co-operated with Baroness des Planches, wife of the Italian ambassador, with the result that substantial donations were had from the wealthy residents in that city.

J. Pierpont Morgan sent $10,000 for the relief of the earthquake sufferers.

The news of Mr. Morgan's contribution was communicated to the government by Ambassador Griscom, who also informed the Duke of Aosta, president of the national relief committee, of the donation.

The people were touched by the promptitude with which Mr. Morgan contributed. The fact that Mr. Morgan returned to Italy the famous Ascoli cope without asking for reimbursement of the sum this treasure cost him endeared the American financier to the Italian hearts; his generous contribution to assist the earthquake sufferers was a still closer tie.

THEATRICAL PEOPLE AID ITALY'S SUFFERERS.

Great catastrophies must be met by great measures of relief, and the co-operation of the theatrical profession in giving their talent for the benefit of the survivors cannot be passed without comment.

Countless performances in theatres all over the country helped to swell the relief fund, and this was not in the large theatres alone, but also in what is known as "The 5-Cent Theatres."

Those who were located in New York and Chicago at the time of the disaster, vied with each other in doing the most to increase the fund. In the latter city a monster benefit was held which was participated in by all the leading artists which netted several thousand dollars. Vaudeville artists dressed in their stage make-up went on the streets, sang and acted and passed around the hat. The city newspapers supplied their daily papers free to chorus girls who went on the streets and in the large office buildings, and sold them, some men paying as high as a dollar for a two-cent paper.

Stage hands, bill posters and opera house attaches assisted in the good cause as well as the ticket and advertising printers.

The great heart of nature stirred in every breast—it was the hour of unison. The cause was worthy of the work and harmony reigned supreme.

CARUSO GIVES THOUSANDS.

Signor Enrico Caruso, the world's greatest operatic tenor who is a native of Italy, but who was in the United States at the time of the disaster, contributed a week's salary to the relief fund. As Caruso receives about two thousand dollars for each performance, and he takes part in four performances each week, his contribution would amount to about $8,000.

"TAG DAY."

The Italian relief committee of Chicago held a Tag Day. They were assisted by nearly 500 young society ladies. This bevy of youth and beauty were each supplied with a large contribution box and about two thousand tags each. These tags were printed on white Bristol board with a wire attached.

The "Taggers" stationed themselves on the crowded street corners, in the railway depots and invaded the large office buildings, with winsome smiles coupled with an irresistible "arn't you going to be tagged" they stopped every man and woman.

The collection box was offered for the contribution and the donor received a pleasant "thank you" and departed with a tag securely fastened in his button hole.

FAC-SIMILE OF TAG USED.

No specified sum was asked for from any individual, each gave what he liked and the amounts ranged from fifty dollars to a few pennies. Only two classes did not contribute, those who could not afford it and those too mean and stingy to unlock their purse strings.

The "Taggers" worked from 7 o'clock in the morning until 6 at night and their total collections netted the tidy sum of $12,000.

CHAPTER VIII.

UNITED STATES FLEET.

The United States Government to the Rescue—The United States Navy—The Greatest Fleet Ever Sent on a Cruise Joins in the Mission of Mercy and Relief—The Crowning Act of the Great American Fleet on Its Famous Globe Encircling Voyage—The Number of Officers and Men Accompanying the Great American Fleet in the Work of Rescue.

On New Year's day President Roosevelt announced that he had sent two supply ships with $300,000 worth of supplies to Italy.

In communicating the desire of the United States Government to King Emmanuel, through Mr. Griscom the United States Ambassador at Rome the King responded to our ambassador's words with much feeling and declared that the United States was always first in any emergency.

The supplies sent by our Government were distributed by the Red Cross Society to the survivors in the stricken communities.

The great American naval fleet in the Suez canal when the earthquake occurred was returning from the most notable cruise ever made around the world by any fleet of warships.

President Roosevelt immediately offered to the Italian Government the services of the entire fleet and in so doing expressed himself as feeling sure Congress would stand by him in this, when that body reassembled after the holiday recess, and Congress did approve of the President's prompt act of charity made for all the people of this great and prosperous nation.

Admiral Sperry proceeded to Naples with the fleet. There the great squadron anchored to be called upon when vessels were needed for the work of rescue or to carry supplies. Before the great gloom and sadness overtook Italy elaborate plans had been made on the part of the Italian Government and at the several ports to entertain our naval officers and men. These plans were, of course, abandoned. Our officers were given a few informal dinners at Naples, Rome and Genoa which were returned in the same simple manner.

When on December 16, 1907, the great United States naval fleet started upon its famous cruise around the world, the administration of President Roosevelt was severely criticised for the undertaking. When it was announced six months previously that all of the vessels of the fleet would be put into perfect condition for the cruise, a great campaign of criticism of the President and his administration was inaugurated and kept up until the fleet started, and, indeed, for some time afterward.

It was loudly maintained that the sending of the fleet was to be a demonstration against Japan and its aggressions in the far East. This was vehemently denied both at Washington and at Tokio. When the fleet arrived in Japanese waters, the Japanese government had in preparation a cordial reception to Admiral Sperry and his fleet that has hardly been rivaled in the history of the world. The friends of the administration, through the administration adherents among the press now had their inning. It seemed to be demonstrated that the effect of the fleet's visit to Japan was to cement the two nations in stronger friendship than ever before. It is noteworthy that the sensational war talk that had been going on in our own country, as well as through the press of other nations, suddenly ceased after the friendly and elaborate reception given the officers and the men of the fleet.

The climax of this grand cruise was the visit to stricken Italy in its time of sore need. There is no longer any talk of war between Japan and the United States, and the idea that the fleet would bring about a war has been completely dispelled. In this connection all sorts of theories were advanced by the American sensational press, as well as by the press of Europe. It was charged that the wiley Japs, or some fanatical society there, would take occasion to destroy one or more of our vessels, anchored peaceably in the harbor, and that there would be a repetition of the Maine disaster at Havana. But the alarmists, some of whom had stultified themselves, have been silenced. And while this is true it serves the interest of a free Republic like the United States to have the acts of any administration discussed, for the benefit of the people, if not criticised with the widest freedom. The people of the United States are educated to do their own thinking and to

get whatever benefit may come from a lively discussion of all of the acts of those in charge of the government.

The fleet sailed southward through West Indian waters and encircled the South American Continent, touching at some of the principal ports of that country. The friendly relations between the United States and the several nations of South America have been getting better each year, particularly during the last decade. The visit of our fleet to those countries tended to enhance the improved relations existing between the United States and the progressive states down there.

The fleet passed through the Straits of Magellan and continued along the western coast of South America to San Francisco. From the Pacific coast the fleet proceeded to our Hawaiian possessions 2,000 miles into the Pacific from San Francisco. From San Francisco the fleet sped toward the Philippine Islands and remained at Manila for several days. Thus our Filipino subjects and brethren, numbering some 9,000,000, as well as our Hawaiian subjects, numbering about 150,000, were enabled to realize, to an extent, with their own eyes, the strength of the nation of which they are now apart. If for no other reason alone this was a sufficient one certainly for the fleet to make the Trans-Pacific voyage. The Filipinos, in particular, have been, of course, very ignorant of the United States and our system of government. Our navy first went there on May 1, 1898, on a mission of war and destruction, which, unhappily as the world is constituted, seems at times necessary. Did not the greater fleet of Admiral Sperry, which visited the Islands, ten years later, have a greater result toward the civilization of the Philippine Islands, in its mission of peace, than the fleet of Admiral Dewey?

From Japan the fleet proceeded southward to New Zealand, where the government of New Zealand had appropriated more than $100,000 to entertain our officers and men in the most cordial and lavish fashion at Auckland.

From Auckland the fleet proceeded across the Tasman Sea in five days to Sidney, Australia, where practically all Australia gathered in honor of our fleet. Other receptions were held at Melbourne, Adelaide and Albany. As the fleet proceeded toward the

Indian Ocean to Colombo in Ceylon, another British possession, it was received everywhere with marked friendliness and amazement.

Across the Indian Ocean from Ceylon the fleet cruised slowly to the strait of Pirin, the entrance into the Red Sea, probably the hottest navigable sea in the world. It was while our fleet was passing through the Red Sea and approaching Suez, where begins the Suez Canal connecting the Red Sea with the Mediterranean Sea, that the Sicilian-Italian earthquake occurred. The President of the United States, through the Navy Department, immediately began to communicate with Admiral Sperry by cable, with a view to having the fleet proceed to the scene of the earthquake, as a relief expedition, with all haste. Two or three of the vessels were sent on in advance. We have related in another place something of the work done by our fleet.

It may be said that when the officers of our great fleet first heard of the earthquake disaster, that it was almost at the northern end of the Red sea, near Suez, under the shadow almost of Mount Sinai. It is here that the Bible tells us that the children of Israel and the Egyptians crossed the Red Sea and ascended the mountain, that is, the children of Israel did but the Egyptians were all lost, it will be remembered. The waters of the sea were made to separate at this particular point in the Red Sea, as Bible students agree. The Lord commanded Moses and Aaron to ascend the mountain when He promulgated the ten commandments, as recorded in the 20th chapter of Exodus.

In Exodus 19:18, the verse reads: "And Mt. Sinai was altogether on a smoke because the Lord descended upon it in fire; and the smoke thereof ascended as the smoke of a furnace, and the whole Mount quaked greatly."

It was very near this historic spot that Admiral Sperry, as stated, received the news of the terrible disaster that had befallen Italy.

To sum up, the great American fleet, in its cruise around the world, crossed the equator four times—first, before it reached the coast of Brazil and next on the northwest coast of South America as it passed the shores of Ecuador, off the Galapagos Iles; and

next on its way to New Zealand, north of the Samoan Islands and the fourth time in the Indian Ocean, before reaching Colombo.

Not the least of the benefits accruing from this famous voyage, is the experience gained by our navigating officers, as well as by each one of the some 16,000 men, comprising the crews of the vessels.

CHAPTER IX.

UNITED STATES GOVERNMENT TO THE RESCUE.

Appropriation by the United States Congress for the Relief of the Starving Survivors—The President's Message to the Senate and House of Representatives Recommending the Appropriation—The Red Cross Society Appropriations—Balance of San Francisco Relief Fund Transferred by Cable to Italy—The Amounts Raised by the Several States of the Union for the Relief of the Men, Women and Children Made Poverty-Stricken in This Most Awful of the World's Disasters.

"To the Senate and House of Representatives:

"The appalling calamity which has befallen the people of Italy is followed by distress and suffering throughout a wide region among many thousands who have escaped with life but whose shelter and food and means of living are destroyed. The ordinary machinery for supplying the wants of civilized communities is paralyzed; and an exceptional emergency exists which demands that the obligations of humanity shall regard no limit of national lines.

"The immense debt of civilization to Italy; the warm and steadfast friendship between that country and our own; the affection for their native land felt by great numbers of good American citizens who are immigrants from Italy; the abundance with which God has blessed us in our safety; all these should prompt us to immediate and effective relief.

"Private generosity is responding nobly to the demand by contributions through the safe and efficient channel of the American Red Cross society.

RECOMMENDED $500,000 FUND.

'Confident of your approval, I have ordered the government supply ships Celtic and Culgoa to the scene of disaster, where, upon receiving the authority which I now ask from you, they will be able to dispense food, clothing, and other supplies with which they are laden to the value of about $300,000. The Celtic has already

sailed and the Culgoa is at Port Said. Eight vessels of the returning battleship fleet are already under orders for Italian waters and that government has been asked if their services can be made useful.

"I recommend that the congress approve the application of supplies above indicated and further appropriate the sum of $500,000 to be applied to the work of relief at the discretion of the executive and with the consent of the Italian government.

"I suggest that the law follow the form of that passed after the Mont Pelee disaster in 1902.

"THEODORE ROOSEVELT.

"The White House, Jan. 4, 1909."

ACTION TAKEN BY THE SENATE.

Following the receipt of the president's message, resolutions giving effect to it were introduced in both houses. The senate resolution follows:

"To enable the president of the United States to procure, transport and distribute among the suffering people of Italy and its islands such provisions, clothing, medicines, moneys and other articles as he shall deem advisable for the purpose of rescuing and succoring the people who are in peril and threatened with starvation in consequence of the recent earthquake, the sum of $500,000 is hereby appropriated out of any moneys in the treasury not otherwise appropriated; and the action of the president in dispatching the naval vessels to Italy with food and supplies for the Italian sufferers is hereby ratified and approved.

"In the execution of this act, the president may use any vessels of the United States navy and such other vessels as he may, in his discretion, employ."

RESOLUTION OF THE HOUSE.

The house resolution reads: "To enable the president of the United States to procure and distribute among the suffering and destitute people of Italy such provisions, clothing, medicines and other necessary articles, and to take such other steps as he shall deem advisable for the purpose of rescuing and succoring the people

who are in peril and threatened with starvation, the sum of $800,000 is hereby appropriated out of any moneys in the treasury not otherwise appropriated.

"In the execution of this act the president is requested to ask and obtain the approval of the Italian government and is hereby authorized to employ any vessels of the United States navy and to charter and employ any other suitable steamships or vessels."

WHY SUM WAS INCREASED.

At the conference at the White House which was attended by Speaker Cannon, the sum of $500,000 was agreed upon as the amount which should be appropriated. That sum was included in the act drafted by the appropriation committee. Ten minutes before the house convened the speaker received a letter from the White House suggesting that the amount be increased to $800,000. Before any action could be taken by the committee on appropriations the house was in receipt of the president's message on the subject.

At the hurried meeting of the senate committee the amount was increased to conform with the president's later recommendation, with comparatively no delay. Mr. Hale reported to the senate a resolution adopted by the committee on appropriations, and it was agreed to with only one vote in the negative, which was cast by Senator Bailey.

RED CROSS SAN FRANCISCO RELIEF FUND.

After completing its work of relief for the sufferers in San Francisco, the Red Cross Society had a balance on hand of over $400,000. At a special meeting of the Committee it was decided to turn this amount over to the Red Cross Society of Italy, and this was concurred in by the San Francisco Committee. The money was forwarded in amounts of $50,000, the first remittance being sent by cable on December 31st, 1908.

The work of the house in passing the above bill was probably done as quickly as any piece of legislation ever put through, everything was almost unanimous. No debating was done and it took only the time necessary to read the President's message and the bills in each house. A short time afterwards President Roosevelt signed the bill and the United States government had given $800,000 in money and over $300,000 in supplies to aid the stricken Italians.

This official action of the American government was characteristic of the promptness and liberality that distinguishes the American people.

U. S. GOVERNMENT SENDS 3,000 HOUSES.

An innovation in international relief measures was undertaken by the American government in expending the $500,000 in money appropriated by congress for the Italian earthquake sufferers. President Roosevelt decided to send to Italy material for the construction of 2,500 or 3,000 frame houses, supplementing this by supplying carpenters to supervise construction.

After the appropriation was made serious consideration was given by the president and the state department as to the best methods of relief. Ambassador Griscom at Rome was asked to give the views of himself, his fellow members on the American relief committee, and of the Italian government as to the most sensible course to adopt.

A final decision was reached. Then instructions were given by President Roosevelt to Secretary Newberry whereby the machinery of the navy department was enlisted in the plan. Mr. Newberry made the arrangements.

STATEMENT MADE BY NEWBERRY.

The following statement was made public at the secretary's office:

"The navy department has arranged for the expenditure of approximately $500,000 in the purchase of building materials, including all articles necessary for the construction of substantial

frame houses for the Italian sufferers, and the shipments will begin by the sailing of two steamers at once. This lumber was delivered in New York, and the sailing of the vessels proceeded as fast as they could be loaded.

"Each ship carried the materials for 500 houses, and it required not less than six steamers for the entire amount purchased. The department sent with each vessel several civilian house carpenters with plans to assist in the erection of these houses."

CHAPTER X.

AFTER THE EARTHQUAKE.

Nature Remains Cruel, Additional Shocks Adding Terror to the Stricken People—Description of Messina After the Earthquake by F. Marion Crawford, the Celebrated Writer—Millions in Treasure Buried at Messina—Miraculous Rescues—Immense Graves Hold Over One Thousand Bodies—Messina and Reggio to Be Rebuilt.

Even while the rescuers were at work removing the debris, and while the sympathetic world was hurrying relief to the sufferers; while the stunned and hapless people were trying to collect their thoughts and face the stern fact that they had lost all that they held most dear, Nature remained unkind. Earthquake shocks continued daily, sometimes as many as ten in one hour. Walls that had stood the first shock came tumbling down endangering rescue parties and piling tons upon tons of wreckage on top of helpless victims already buried alive.

Every fresh shock would bring loud cries from the terrified population, as the cloud of dust caused by the falling walls would arise and float off toward the sea.

F. Marion Crawford, the celebrated author, who has a magnificent castle in the southern part of Italy, gives the following description of Messina after the earthquake:

"The total destruction of a flourishing and commercially necessary city with its entire population is a calamity without parallel in history.

"A new and unexpected problem presents itself at Messina, where the majority of the inhabitants have perished with their dwellings, goods, belongings, papers, and even land titles; in many cases leaving no surviving relatives.

"How can a new city possibly rise on the ashes of the old? Who will lay the first stone? Who will adventure to light the first fire on his hearth? It has been decided in the interests of public safety and public health to raze to the ground the ruins of this

THE TERRIBLE TIDAL WAVE.

Showing the rushing waters engulfing the people and the terror stricken domestic animals fleeing to supposed security, only to be drowned in the flooding water.

SAN GIOVANNI.

The center of the earthquake was near here and this beautiful city was razed to the ground.

PALACES AT MESSINA.

The residences of the government officials overlooking the harbor before the earthquake. Nothing remains of them but a pile of ruins. All the officials and their families perished.

city and the leveled ruins are to be covered with quicklime as the only means of effectually purifying the now pestilential air.

WORST REPORTS CONFIRMED.

"Where a city of 150,000 inhabitants rose in a wide amphitheater only a few days ago, overlooking one of the most magnificent harbors in the world, men will seek a week hence a vast whitened hollow in a hill, the sepulchre of 130,000 human beings, of whom more than half died in unimaginable agony.

"At least there will be peace after this hideous week. A member of my family, who risked his life to see and learn the exact truth on Wednesday, Thursday and Friday, describes scenes of undreamed of horror which have been unhappily confirmed in every detail by destitute survivors brought to us here as elsewhere to be healed, fed, clothed and housed. Death was everywhere.

"On Friday evening the bodies of persons extricated from the ruins and of those who had died of their injuries as soon as they saw the light lay so thick in the streets that it was hard not to tread on them.

MANY ARE BURIED ALIVE.

"No battlefield ever presented a more terrible sight, while dogs of every breed, from Sicilian mastiffs and sheep dogs to the slinking curs of the hill villages, had gathered in thousands, though hundreds upon hundreds of them were shot by soldiers and blue jackets.

"As night fell sullen fires still glowed upward to the darkening sky and the shrieks of buried victims grew more piercing and despairing as death by fire drew near to those whom neither wounds nor suffocation had yet set free. Better the mournful silence and the lime-strewn hollow which will soon mark the spot where Messina stood.

"Italy has made a magnificent effort to help where no assistance could avail and she has been nobly seconded by the foreign men-of-war that were within reach of the scene of the catastrophe. Soldiers and seamen worked night and day to save life, often without food or water, some of them wielding spade and pickax for

fourteen hours without being relieved in the half-organized assistance which prevailed.

PROVISIONS SWEPT INTO SEA.

"Above all, the English and Russian bluejackets have shown themselves to be absolutely fearless and untiring, but their tremendous exertions have been of little avail. Fifty thousand trained laborers working in gangs regularly relieved and fed could not have saved one-tenth of the population from death.

"One of the shocks in the harbor caused a second tidal wave that swept away the great supply of provisions generously sent by Germany and just unloaded on the docks.

"The Straits of Messina, scarcely one week ago as lovely as the Bosphorus itself, will lie between barren and whitened shores. From end to end there are vast cemeteries where lie the bodies of nearly 150,000 men, women and children. Soon the last steamer will leave the harbor for Naples with the last ship load of destitute, homeless, half-naked beings. Where will they live who have lost all; where will they begin life again whose lives are literally all they have? God knows. God help them."

MILLIONS IN TREASURE IN MESSINA DEBRIS.

Messina is a veritable gold mine. Valuables running up into the thousands were taken from the ruins to the steamers in the bay. Currency to the amount of $3,600,000, including the contents of the safe of the Sicilian-American Bank, was transferred to ships. One of the rich residents of the city, a banker named Mauremati, made penniless by the earthquake, went to the authorities barefooted and half clothed, and asked for a pair of shoes and an overcoat.

MIRACULOUS RESCUES.

A squad of sharpshooters rescued an old man who had been twelve days in the ruins. Their attention was called to the place where he was lying by the whining of a dog. They removed a great heap of debris and came upon the dog and its master. He was alive but unconscious. The officer commanding the squad adopted the dog.

A man named Bensaja, who had passed fourteen days without food locked in the ruins of his home, was taken out unconscious and resuscitated. He had been caught in a kind of straitjacket formed by the debris and, unable to move, was compelled to watch the lingering death of his wife and four children. A married couple were also removed not only alive but conscious. Their imprisonment had lasted thirteen days.

SAILOR FINDS SWEETHEART.

A curious case of telepathy occurred to a sailor on board the Italian battle-ship Regina Elena. He was granted leave to search for a girl in Messina with whom he was engaged to be married. After having sought for her during four days he returned to the ship exhausted and fell into a deep sleep, during which he dreamed of his fiancee saying to him, "I am alive; come, save me." The sailor waked, obtained fresh leave from the commander of the ship, gathered together several friends and went to the spot of which he had dreamed. The party penetrated the ruins of a house and found the girl uninjured.

BABY LIVES 16 DAYS IN RUINS.

An extraordinary disinterment took place today, a 3 year old girl being taken from earthquake ruins alive and uninjured, after sixteen days' burial. The possibility of the girl's having had nourishment is excluded and it is believed that part of the time she was in a cataleptic state.

CHILDREN CLING TO DEAD MOTHER.

One of the rescuers found under the ruins of a house five children alive, but unable to speak, clinging around the corpse of their mother.

FACE DOOM TO GUARD RICHES.

A priest and his attendant, who were found alive amid the ruins of their presbytery, declined to leave. They preferred to remain in this dangerous situation, as beneath the ruins were hidden their treasures. They told the rescuers life was not worth living without their wealth.

DOGS ATTACK REFUGEES.

Dogs constituted one of the dangers to the earthquake refugees. These animals, starving and often rabid through lack of water, gnaw the bodies like hyenas and frequently attack the refugees themselves. Among the wounded was a young man whose face had been badly mutilated by dogs. After the earthquake he was buried in debris up to his neck, and, while thus unable to move, was attacked by three of the animals and seriously hurt before his cries attracted help. Many people were shooting all vagrant dogs at sight and stray bullets were another danger in the city.

ARCHITECTURE LOST TO WORLD.

The correspondent made two tours about the wrecked city through streets piled twenty or thirty feet high with debris. It was a wilderness of ruin a mile wide and two miles long. Beautiful churches, splendid villas in the foothills, hospitals, barracks and the university all shared the common lot. Two-thirds of the magnificent Norman Cathedral, the pride of Messina, is in ruins and little or nothing remains of the relics of Phœnician, Greek, Roman and Saracen architecture which marked the stages of Messina's twenty-six centuries of tragic and tumultuous history. The loss to the world will be irreparable.

Here and there were encountered salvage parties at work. They were digging at the instance of some distracted wife or mother who imagined she heard a voice, but usually there was no echo to the pathetic calling. One party was trying to dig out a girl whose crying could be heard plainly, but as the correspondent watched there was a sudden cave-in, and thereafter silence.

In many places decomposing arms and legs protruded from heaps of masonry and plaster.

1,300 VICTIMS BURIED IN ONE GRAVE AT MESSINA.

Stricken Messina buried 1,300 of her dead in an immense grave 100 feet long and 30 feet wide, even as the city trembled from numerous earthquake shocks.

The funeral ceremony was, perhaps, the most impressive that the world has ever seen. In the great trench the bodies were piled one

on top of the other and covered with quicklime. The scene of the burial was at Margresso, where hundreds of the ill-fated survivors gathered and wept as the Latin words of the service and benediction fell from the quivering lips of Archbishop Darrigo. Tears rolled down the cheeks of the prelate as he prayed for the dead.

MESSINA AND REGGIO TO BE REBUILT.

Although it will take a generation for these cities to recover and be rebuilt prominent citizens absolutely refused to abandon them. The Italian government, which met shortly after the disaster, also decided to rebuild the cities and work will be begun as soon as the army of laborers now busy clearing away the debris is finished.

A special committee was appointed by the government to visit all cities subject to earthquakes, especially central America and Japan, and this committee is to report upon the best kind of buildings that can be erected to withstand earthquake shocks. Government and public buildings will be built on these special lines, and all private buildings will have to conform to the rules laid down by the government.

COMMITS SUICIDE BROODING OVER DISASTER.

Despondency over the death of thousands of her countrymen in the Italian earthquake caused the suicide of Mrs. Genevieve Guagliata, wife of Dr. Vincent Guagliata, a prominent Italian druggist living at 1158 Addison Avenue.

She was found dead from gas fumes in the bathroom by her husband when he returned home late at night. She came from Messina, where the quake claimed its great sacrifice of lives.

NOTE WARNS HUSBAND.

When Dr. Guagliata returned to his home he found the following note warning him to be careful because of escaping gas on a table in the sitting room:

Dear Vincent:

Please be careful when you come in and open all the win-

dows and do not light any matches. I have turned on the gas and you remember about the cremation you promised me, Vincent. Goodbye.

BROODED OVER QUAKE.

Friends of the Italian woman told the police that she read constantly of the disaster abroad and brooded over the news. Dr. Guagliata declared he could attribute no other cause for his wife's suicide than despondency over the earthquake.

AN AMERICAN GIRL DESCRIBES THE RESCUE WORK.

Miss May Sherman of Elizabeth, N. J., who was active in the work at Taormina for the relief of the earthquake sufferers, gave details of the conditions of the refugees who came under her observation. Some of the wounded, she said, were so severely hurt that there was little hope of their reaching Catania alive. They were taken from the train and given every attention possible at Taormina. Italian doctors and an English physician, Dr. Dashwood, and his wife, were indefatigable in their labors. Four of the wounded died during the first two days.

"All the bakers of Taormina," Miss Sherman said, "were kept at work making bread, and they were paid with contributions from the foreign colony. We did everything possible to obtain clothing to cover the naked and shivering people. There were many children among the refugees who had been made orphans by the earthquake.

"A Mrs. Welch, who had intended to go to Messina the day before the earthquake, saved her life by postponing her departure. Mrs. Welch has taken charge of a little girl refugee, evidently of gentle birth, and if she is not claimed will adopt the child. Lady Hill and her daughter, who have a school at Taormina in which they teach embroidering, devoted themselves to nursing and caring for the sufferers, receiving some in their own villa.

REFUGEES SHOW GREAT PATIENCE.

"I was struck," Miss Sherman went on, "by the behavior of the refugees. They seemed dazed with terror and suffering, but were not complaining. They were ready to share whatever was given them with one another, and even those who were suffering most did

not forget to thank us for the kindness shown. The people of Giardini seemed to have no thought of giving even water to the refugees until such a course was suggested to them by the foreigners, but as soon as they did wake up they showed great kindness and received 100 of the wounded in their homes.

"On the morning of Dec. 28 a strong earthquake shock was felt at Taormina, but no damage was done. Even the ceilings were not cracked. I awoke to see the furniture swaying and was alarmed at first, but was reassured on hearing it said that such a thing as houses being thrown down by an earthquake at Taormina was unknown. The inhabitants of the city, however, were terror stricken, and fled to the streets, where they formed processions, carrying statues of St. Peter and praying that no harm come to them or to the town.

AMERICANS AND ENGLISH HELP.

"It was Tuesday when we received the terrible news from Messina, which ordinarily is only two hours from Taormina. That afternoon trains to Catania began running. Hearing that enormous numbers of refugees and wounded were passing through Giardini, four miles from Taormina, the English residents, American visitors and strangers of all nations decided to help in providing relief for the people clamoring for food and water.

"The roads from Taormina to Giardini were in the worst imaginable condition, but all through the week following the earthquake an enthusiastic band of workers went back and forth carrying bread, bandages and clothing.

DESCRIBES SCENES OF SUFFERING.

"Sights seen among the refugees were harrowing. They were piled into the railroad carriages one on top of another. Many were absolutely naked, covered with mud and half dead from hunger. Others were bleeding from wounds that had not been bandaged. One woman's arms were torn from their sockets. A young artist was in a pitiable shape, having been precipitated with his bed from the top story of his house through to the ground floor, where he

remained twenty-four hours pinned down and unable to move, all the time listening to the screams of his dying mother and sister."

Among the members of the rescue band were Baron Boli Castrane, who distinguished himself by his energy and self-sacrifice, and an American, Miss Fernald Fernard. Miss Sherman said that when she left the work was continued and that all available help was utilized to make clothes for the refugees who were passing through Giardini.

MEXICO SHAKEN BY EARTHQUAKE.

City of Mexico, Jan. 9.—The entire western coast of Mexico was shaken by an earthquake yesterday. It was felt most strongly at Acapulco, in the State of Guerrero, and at Oaxaca, in the State of the same name. The damage was trivial and no fatalities have been reported.

AUTHOR ROBERT HICHENS' VIVID STORY OF ARRIVAL OF REFUGEES.

Mr. Robert Hichens, the famous novelist and author of "The Garden of Allah" was at Naples when the first survivors of the earthquake arrived. In a special article he says:

"From the gate of the arsenal I saw a procession of injured and dying carried in cabs, motors, ambulances and beds. Some, with their wounded faces covered with mud, dust and blood, gazed vacantly, with uncomprehending eyes, on the surrounding crowd.

"Three men were mad, waving their naked arms in the air. One was shouting and cursing heaven and earth, while another was wailing in a most pitiful manner. Most of the people who assembled to watch the passage of this mournful cortege were dressed in mourning.

"They had come to search among the survivors for relatives and friends. One grief-stricken woman tried to pull the covering from the faces of some of the wounded carried on a bed and was prevented by sailors.

"The Neapolitans in their desire to succor the injured survivors worked splendidly. Bands of students in colored caps were making

house-to-house collections for relief funds and owners of motors loaned their vehicles for the transportation of the wounded.

"Another ship had just come in and I witnessed a procession of motors with beds on them held by the young aristocrats of Naples, who lavish attentions on the injured, giving them brandy and comforting them in every possible way.

HOTELS OPENED TO THE REFUGEES.

"There are many women and small children, all bearing traces of suffering. Their injuries seem to be mostly of the face and head. It is curious to see how the fixed expression of intense horror on their faces renders them all strangely alike. None of this pitiable collection of maimed humanity has a hat.

"Except two little boys in sailors suits who are lying on a mattress, locked in each other's arms, many of the children who reached here have no parents or relatives alive. They are now utterly bereaved, but surely they soon will find protectors.

"The hotels lent their omnibuses for the transportation of those less seriously injured and gave them beds. The heroic Russian sailors, who rescued many, were wildly cheered by the crowd."

LITTLE CHILDREN BECOME HEROES.

Many stories of daring rescues by sailors and soldiers have been told, but these are not the only ones who are entitled to praise. The heroic conduct of two children in this disastrous earthquake are worthy of great praise for courage and daring.

Luigi Gabi the 12-year-old son of Prof. Gabi, a well known citizen of Messina, by valiant and persistent work accomplished the wonderful act of saving his father and mother. Little Luigi was awakened from sleep by a great crash and rumbling. He felt the floor rock beneath him and heard a noise as if the whole sea were pouring in upon the land. Beams and plaster had fallen all about him, but he himself, by a happy chance, escaped without a scratch. He rushed out in his nightclothes into the open air. He was all alone. The shrieks of the injured rose above the continuous roar of falling buildings. He called vainly for his father and mother. No one paid

any attention to him. It was impossible to go back into the house, for a second earthquake had tumbled a great mass of wreckage across the door.

All night long Luigi waited. When morning came clouds overspread the ruins of Messina and rain began to fall in torrents. Unable to find any trace of his father and mother, he at last decided to try to make his way back into the ruins of his home. Wet and shivering, he clambered carefully through the debris, and at last reached the room in which his father and mother slept. The door opened outward, but against it were now piled great beams fallen from the floor above. The window which opened on the street had been blockaded by the wall of the house opposite, which had toppled clear across the narrow street.

"Father!" he called at the full strength of his lungs. Although the roar of the rain all but drowned his voice, the cry must have penetrated the blockaded door, for he heard a faint sound, which told him that his parents still lived, and were tightly imprisoned in their bedroom.

Luigi tried to get help, but everybody seemed quite distracted by the terrible calamity which had befallen the city, and they paid no attention to the pleas of the 12-year-old boy. Seeing that if anything was to be done he would have to do it himself, he returned resolutely to the wreckage at the door, and began to tug and strain at the heavy beams and mass of plaster and stone. Little by little he cleared it away. By nightfall, weakened by hunger and exertion, he had the satisfaction of seeing all but the heaviest timber moved enough to open the door a crack.

He called through the door to his father, and the combined efforts of the two were sufficient to free the nearly suffocating parents from their prison and bring Luigi again to his mother's arms. Only the most persistent courage and devotion could have made it possible for a 12-year-old boy to accomplish this deed.

A LITTLE GIRL SAVES MANY LIVES.

Another story is told of the bravery of the little Signorina Franzoni, who is herself only 12 years of age. She lived in the

institute of the Sisters of St. Vincent de Paul. The shock hurled her from the bed in which she was sleeping, on the fourth floor, onto the bed of the girl who slept beside her, upon whom a heavy piece of wood from the ceiling had fallen. After freeing her small comrade, little Miss Franzoni ventured boldly into the dark corridors of the convent and sought to find her way out. After much winding about, she finally found an opening in the shattered wall in the rear, and made her way into the open courtyard. Then, instead of running into the open fields whither fugitives were rushing in great numbers, she thought of the other girls and the sisters of the convent who were still imprisoned inside. Returning the way she had come through the tottering building, whose foundations had been loosened by the violence of the quake, not knowing from one moment to the next whether she would not fall crashing to her death with the whole building on top of her, the brave girl found and led to safety all the inmates of the convent.

AMERICAN CONSUL AND WIFE KILLED.

Dr. Arthur S. Cheney, United States Consul at Messina, who was killed at Messina, was born in the State of Illinois. Early in his life he moved to Connecticut and entered the consular service of the United States Nov. 27th, 1906 when he was appointed vice and deputy consul at Reichenberg (Bohemia) Germany. He was appointed consul at Messina August 15th, 1907 and held this post up to the date of the earthquake when he and his wife were killed. Mrs. Cheney was a Bohemian girl.

BODIES RECOVERED BY AMERICAN SAILORS.

After lying buried in the ruins of the consulate at Messina for eighteen days, the bodies of Arthur S. Cheney, the American Consul, and his wife were recovered at 2 o'clock Jan. 16th, 1909 by a detachment of sailors from the battle ship Illinois.

The bodies were recovered in what evidently had been the bedroom of the Cheneys. They were found lying side by side. Mr. Cheney was identified by a slight physical deformity, while the body of his wife was recognized by a locket and a wedding ring.

There is reason to believe that death overtook the unfortunate couple while they were asleep.

No less than 400 men from the Illinois had been engaged in the work of excavation.

As soon as they were unearthed the bodies were placed in coffins and conveyed aboard the supply ship Culgoa, which left at once for Naples.

Maj. Landis, the American military attache at Rome, who had been superintending the work of excavating the ruins, sent a wireless dispatch to the American consul at Naples asking this official to obtain permission of the local authorities to ship the bodies to Hartford, Conn., on the first available merchant steamer. The caskets containing the bodies of the consul and his wife were sealed and then wrapped each in an American flag, after which American sailors carried them down to the water front. As they made their way through the ruined streets Italian soldiers and sailors saluted and the people took off their hats.

The American supply ship Culgoa with the bodies of Arthur S. Cheney and his wife on board, arrived at Naples from Messina. Maj. Landis, who was in charge of the bodies, at once came ashore and through the American consulate completed arrangements to have the two bodies embarked on the steamer Venezia, of the Fabre line, which left here the same evening for New York.

The bodies of Arthur S. Cheney and Mrs. Cheney arrived at Hartford, Conn., in the latter part of January and were accorded a magnificent military funeral.

Every branch of the Government was represented and thousands of Americans paid the last tribute to their countryman who died at his post of service.

CHAPTER XI.

THE PEOPLE OF SICILY.

The People of Sicily—Customs—Language—Habits and Dress—Occupation and Pursuits of the People.

Sicily is an island of the Mediterranean Sea, lying between the "toe of the boot"—Italy—and the African promontory, Cape Bon, near which are the City of Tunis and the ruins of Ancient Carthage. Its form is that of a long triangle, whose northern side runs due west 200 miles from Messina. The Eastern Coast runs nearly southward 135 miles. Sicily occupies an area—in round numbers—of 10,000 square miles, and had a population (1901) of 3½ millions, (355 to the square mile), making it the most densely inhabited portion of Italy. It was once called the granary of Italy, but now the Sicilians consume all the wheat and other grains produced in the Island. Located as it is, less than 100 miles from Africa, the climate is rather dry. The Siroccos from the desert of Libya often reach Sicily in the summer months; but notwithstanding, the climate is delightful, quite similar to that of Southern California. The thermometer seldom registers above 90° during a Sirocco, nor lower than 36° in the extremes of winter. The annual rainfall ranges from 20 inches on the Southern Coast to 35 inches on the northern. Grapes, olives and citrus fruits are the staple export crops. The average annual return for oranges is over $200 per acre, while that of grain is less than $16.00. The more barren and waste rocky lands produce almonds, sumach (for tanning), and prickly pears, (cactus). These pears (a very coarse fruit) form a considerable part of the subsistence of the lower classes There are forests on the upper slopes of the higher mountains, but the absence of them on the lower lands causes severe and frequent drouths.

Nineteen-twentieths of the sulpher consumed in the world comes from Sicily. There are vast deposits of this useful mineral, condensed during past ages from the gases thrown up from the bowels

of the earth, and accumulated in the craters and cones of the volcanoes. A half million dollars worth of salt, (mostly sea-salt) is annually exported. The bulk of this goes to the fisheries of Norway. The Sicilians are also themselves expert fishermen, and their annual catch in Mediterranean waters is nearly five million dollars in value.

Sicily contains about ten million orange, lemon and citron trees or two thirds of the entire number in all Italy.

The Oranges grown on the sides of Mt. Etna are chiefly blood oranges. Hazel trees and almond trees are abundant about the island.

The population are mostly all employed in the groves and vine country, a considerable number are employed in sulphur mines and a small proportion of the inhabitants are employed in trade. Of late years there has been a large immigration of laborers from Sicily, the principle cause being the disease which attacked the fruit trees and the playing out of some of the sulphur mines.

Sicily since its beginning has been governed by nearly every nation at some time or other, and almost everyone of these numerous nations have left behind it some individuality which modified by the characteristics peculiar to the island have made a great many noticeable changes in art and sculptor on the island.

The Italian language is spoken almost entirely throughout Sicily.

The Sicilians have always manifested considerable capacity for philosophical research and are also known as admirable speakers, their chief study being the history of there own island, the poetry of its early days and the victories of her sons in many battles.

The dress of the people of Sicily is made of many colored cloth, a shawl being used in cold weather. The women wear a handkerchief over their head and the men a soft felt hat.

The cathedrals, museums and libraries of Sicily contain vast treasure of antiques and jewelry, sculptor, paintings and architecture that are priceless.

The cities contain beautiful public gardens and to these inhabitants journey every night to enjoy the music.

The reader will be more interested in the city of Messina, Mount Etna and also the city of Reggio, a short description of which follows.

MESSINA.

Located on the straits of the same name, with a splendid harbor, Messina has been in modern times only second to Palermo in point of commerce and population among Sicilian towns. Most of the vessels passing to the Suez Canal stop here. Its principal exports are oranges and lemons. The cathedral is magnificent; begun by the Normans in 1098; since then enlarged and embellished by the Spaniards. It is 335 feet long by 135 feet wide. Earthquakes have destroyed the larger part of the famous edifices of Antiquity. The university is very prosperous, having an attendance of over 700. Nearly 11,000 vessels enter the port annually. Messina's population was upwards of 160,000. Besides citrus fruits, there is a brisk export of raisins, wine, liquorice, silks and linens. There is also a large trade in fish. Tunny and swordfish abound in the Mediterranean. The latter swarm through the straits in July and August and are speared in immense quantities.

THE FAMOUS VOLCANO MT. ETNA.

This is the loftiest fire mountain in Europe, and its peak is the highest elevation in all Italy. The highest cone is 10,840 feet above sea level. Fortunately for Sicily, the volcano stands near the eastern coast (between Catania and Messina). Therefore only a small territory is seriously affected by its upheavals. The mountain is detached from other ranges, but is pock-marked on all its slopes with ancient craters and cones. It has a crater at the summit, which at times is three miles in circumference. Another feature for which the Sicilians are thankful, is a huge and awful chasm, called the Val di Bove. This is several miles wide, runs eastward from the crater at an elevation of 8,000 to 9,000 feet. It is shut in like a canyon by precipices two to three thousand feet in height. Evidently the Val di Bove was once a crater of the mountain whose eastern rim has broken away, and it now serves the purpose of

conveying the lava flows eastward, away from the fertile country lying to the westward of the Volcano. Like Mauna Loa in Hawaii, Etna has formed bad habits, and occasionally sends out fire rivers from rents in its lower flanks. One of these found its way into the very suburbs of Catania in 1669.

On some of the slopes of the mountain there are dense forests. Above the timber line only scant and scrubby vegetation exists. The last 2,000 feet near the summit presents a frightful desert of several sq. miles of black and broken lava, scoria and volcanic land gashed by deep crevasses and canyons. In this region of death, fire and feast, not a particle of animal life is to be found. Etna is capped with snow during the winter months. The ascent to the summit is easily made from Catania in one day.

In sharp contrast to the frightful desolation and chaos caused by frost and fire at the summit are the magnificent tropical orchards and luxuriant vegetation growing rampantly around the base of the mountain. Here flourish the richest orange, olive and lemon groves in all Italy. It is a fact, not often appreciated, that the porous rock and light cinders thrown from a volcano when once decomposed form the richest and most exuberant soil known to man.

Etna has been famous from the earliest ages. To the Greeks it was known as the prison of the giant Typhoeus. Roman mythology placed in its bowels the laboratory where Vulcan, the god of fire, forged the thunderbolts of Jove. Its peak, shooting skyward through the clouds was a distant beacon from time immemorial, for the mariners of the Mediterranean, for they could often see the glow of its fires by night and a pillar of smoke by day. The tourist who mounts to the crater has a magnificent view of the island, the straits of Messina, and the mountains of Calabria, a vast panorama of scenes most famous in mythology, where for thousands of years, events have taken place that shaped the destinies of the world's mightiest empires.

Authentic history records 80 eruptions from Mt. Etna. The most violent were those of B. C. 396—126—122. A. D. 1169—1329—1537—1669. In the latter years 27,000 persons were made home-

THE ITALIAN LAUNDRY SCENE BEFORE EARTHQUAKE.

Clothes are washed away from the homes in places established for that purpose. Women are washing with their hands in the cement reservoirs which take the place of wash tubs.

A HORSE, A COW AND A DONKEY HITCHED TOGETHER.

A common sight in Sicily and Southern Italy.

THE HAPPY ITALIANS BEFORE THE CALAMITY.

A Neapolitan peasant family taking a drive.

A WINE CARRIER OF ITALY.

The weather is hot. Notice the sun shade over the driver slanting toward the sun. The horse has protection over its head. The netting over the animal and hanging to his front feet protect him from the flies. A generous tail protects the hind legs.

less and thousands of others swallowed up by the remorseless fire torrents. It was by this upheaval that Monti Rossi was thrown up forming one of the big cones of the volcano. In 1693 occurred the great catastrophe which compares with the present disaster. The earthquake, accompanied by a lava river annihilated 40 towns and overwhelmed 100,000 people. An erruption of Etna, (like those of Mauna Loa) takes place about once in ten or twenty years. In 1775 a violent outbreak occurred immediately after the great earthquake at Lisbon.

REGGIO DI CALABRIA.

This city has suffered equally with Messina. It stands on the opposite shore of the straits about seven miles to the southeast, in the "toe of the Italian boot," about 250 miles south of Naples. Before the present disaster, it had a population of nearly 60,000. The climate is so mild that here the date palm sometimes ripens its fruit. The fruit orchards of Reggio and vicinity have been celebrated for centuries. It is an important manufacturing town, and has been a famous trading port for thousands of years. Silks, perfumes and essences; shoes, caps and byssus gloves are the manufactures for which Reggio is famous. A railroad running down the eastern coast of Italy has its terminus here, connected by a ferry to Messina, with the railroad system of Sicily. The island has now 1,000 miles of railroads.

As the old city was nearly destroyed by the earthquake of 1783, Reggio was quite modern in its arrangement and architecture. The principal avenues were broad, and ran north and south, while the cross streets ascended the steep hill from the quays.

In the 8th century B. C. a colony of Greeks settled here and called the city *Rhegium*. In 427 B. C. it was so powerful as to become an ally to Athens in her war with Syracuse. In 399 it made an attack on Syracuse under Dionysius, then one of the most powerful monarchs of the world. As a result, in 387 Reggio was destroyed and her citizens made slaves. Dionysius the younger restored the city to its former glory. During the invasion of Pyrrhus of Epirus, the city admitted a garrison of Roman soldiers

for protection, but they revolted, massacred the townspeople, and held the city for 10 years as freebooters. Nor was it exempt from the invasions of the Goths of Northern Europe. In 410 A. D. it was captured by Alaric; in 549 A. D. by Titila; and by Robert Guiscard, the famous Norman fighter in 1060. It was at Reggio that Joseph Bonaparte was crowned king of Naples and Sicily. In 1860 it was taken from the Bourbon king by Garibaldi, and added to the kingdom of Italy.

The beautiful cathedral of Reggio has twice been destroyed by earthquakes. There is a noble castle on the heights overlooking the straits.

Probably no city has been captured and recaptured oftener than Reggio. For centuries she was the haunt of pirates and freebooters as was also Messina.

CHAPTER XII.

MODERN HISTORICAL SKETCH OF SICILY.

Modern Historical Sketch of Sicily and Its Principal Cities and Towns—A Touch Upon Ancient History of Sicily.

Probably no other segment of the World's Surface has played so conspicuous a part in the Drama of Nations, or passed through so many cataclysms of Nature, or been tossed about by the upheavals of empires and ebullitions of religious and political strife as this long suffering and world famous Island.

Like Canaan of old, it is and always has been, a land of Beulah, flowing with milk and honey; a land of corn and wine. Like the Holy Land also, it has from time immemorial served as the common battle-ground of nations. It has been the threshold between the Orient and Occident, almost constantly baptized with fire, sword and human blood. Many times has it changed its religion. First, the idolatry of pagan Europe prevailed, then, successively, came the worship of Isis, of Ashtaroth, and other gods of Canaan. Then the beautiful mythology of Greece was accepted, only to be followed by the worship of the Roman Jupiter and Mars. Then came the Gospel of Christ, and Sicily was a devout See of the Church of Rome. The Saracens overran the Island with Southern Italy, and Moslem and Christian worshiped side by side for nearly 300 years; the one kneeling with devotion to the Cross, and the other in adoration of the False Prophet.

At times the glories of Sicily have bid fair to outshine the bright lights of other lands. Syracuse and Agrigentum were centres of art, literature and philosophy; of science and poetry. Their civilization eclipsed for a period the splendors of Rome, and vied in brilliancy with that of Athens and Corinth. Nor did the little island lack in political power. By judicious alliances with provinces of the mother country, the Greek cities of Sicily held in their hands the political destinies of the Mediterranean commonwealths for hundreds of years.

THE RISE OF THE GREEK COLONIES IN THE ISLAND.

The ancient name of Sicily was Trinacria, so called probably from the three rocky promontories at the three corners of this triangular island. No other land is more closely woven into the mythology and early legends of the Greeks and Romans. From their traditions we learn that the island was first peopled by the Cyclops, a race of fierce Giants who descended from the gods. Homer also, in the Odyssey, tells some blood curdling things about the *Laistrygones,* another race of big men, the terror of the mariners who happened to become marooned on Sicily's coast. Polyphemus, who had but one eye, was accustomed to capture such unfortunates, fatten them up and roast them by impaling each, one by one, on his huge iron spit. Ulysses escaped from him with his companions by heating the spit red hot and then suddenly boring out with it the giant's eye while he slept. Another race of giants, blacksmiths, were constantly at work in the crater of Stromboli, forging thunderbolts for Zeus, under the direction of Vulcan. The famous deeds of Hercules have Sicily for a base. He drove away the Oxen of Geryones, across the straits of Messina, and was first worshipped as a god at Argyrium where the great hoof prints of the Oxen may be seen in the rock.

Another famous legend relates the rape of Persephone, when she was picking flowers by the banks of Lake Pagus. She sees a wonderful narcissus with a hundred heads, near the brink, and hastens to pluck it. Suddenly, Aidoneus, one of the gods of the lower world, comes up through a chasm near by, snatches the beautiful maid and carries her off in his chariot, that is drawn by shiny black steeds. In the plain, near Syracuse, the Nymph Kyana halts him, and demands that he let Persephone go free. Kyana is turned into the beautiful fountain bearing to this day her name, and Aidoneus carries away his prize to the nether world. Then Demeter, Persephone's mother, wanders all over the world, searching for her. In the end Zeus settles the matter by proclaiming that Persephone shall spend half the year with Aidoneus as queen of the nether world and the other half (Spring and Summer) on the

surface. She receives Sicily, as her wedding gift, and is restored to her goddess mother.

The island was colonized in early days by the Sikels and Siculi, who came across the straits from Italy, and found a land of promise and eternal summer. But about the sixth and seventh century B. C. began a westward migration from Greece, from the land of the Trojans in Asia Minor, and from Sidon and Tyre (Phœnicia). In Sicily they found an ideal resting place, and thither they transplanted the culture, art and civilization of the Orient. From Eubœa in Greece came Chalcidians, who founded Naxos about 735 B. C. Then from Ionia came a brave colony who built Katana (Catania) and Leontini. About the same time Corinth sent out an ambitious band, and they built toward the southeast the famous and beautiful city of Syracuse, destined to become at one time the largest and most powerful city of the world, whose high culture and science made her the mistress, for a time, of the whole west. At the northeast corner, on the straits of Messina rose the city of Zankle (now Messina). This also was founded by Chalcidians; but in olden times was frequently a nest of pirates and freebooters. All these cities were on the eastern coast. The reader should have a brief description of Syracuse. It was first built on the little island Ortygia. From this was built a bridge to the mainland and later a wide mole. South of Ortygia was the Great Harbor, almost landlocked, and north of it the Little Harbor. On the island was the famous fountain Arethusa, whose waters often made a siege of the town futile. The major part of the city lay on the mainland, defended by rocky cliffs and several forts.

On the north coast the Greeks built a city called Himera (now Termini). Then about 599 B. C. the Greeks from Crete and Rhodes laid the foundations of Akragas (Agrigentum, now Grigenti) on the southwest coast. This city had a great commerce with Africa and Carthage, and sometimes was more Phœnician than Greek, which led to many wars with Syracuse. When the island became well populated, the Greeks dominated the eastern half, the Sikels the interior, while the Phœnicians built and controlled at the westward end, Panormous (now Palermo), Eryx, Lilybœum, Selinous and Mazara.

Thus in 140 years the Greeks peopled and built up the eastern and southern territory. They now controlled the Mediterranean Sea. But only a hundred miles away was rising at the same time, a mighty power, destined to shake to their very foundations all the nations of Southern Europe. This was the Phœnician City of Carthage. After centuries of war and dissensions, the Italian first settlers were gradually absorbed into the Greek commonwealths by conquest and intermarriage.

WARS WITH CARTHAGE AND ATHENS.

Now began a period of great prosperity. Several independent cities became not only powerful and populous, but vied with Corinth and Athens themselves in commerce and the arts of civilization. Their form of government was at first democratic. This gradually gave way as they became wealthy to the rule of the aristocrats, and they became *oligarchies*. On account of the growing power of Carthage, and her alliance with the Phœnician cities of the west of Sicily, the Greek cities began to form coalitions among themselves. This gave opportunity to ambitious leaders to seize the reins of government and establish themselves as despots. These self-constituted monarchs, some of them good patriots to be sure, but the majority selfish and unscrupulous were called *Tyrants*.

About this time the Persians of the east and the Carthaginians conspired together to attack the Greeks of the east and west simultaneously. Persia was now the greatest empire (in extent) in the world, and had already taken possession of the Greek provinces in Asia Minor. Carthage was exceedingly jealous of the encroachments of the Greek cities in the island. At this time Theron was tyrant of Agrigentum and Gelon ruler in Syracuse. Theron made a raid and captured Himera on the north coast. This so enraged the Phœnicians of Sicily that they urged Carthage to come to their aid. She responded with much alacrity, knowing that Xerxes had now crossed the Hellespont into Old Greece and was pressing hard on Athens and Corinth. So, very suddenly, their war ships appeared at Panormous and landed a big army, including horses and chariots. Theron was most thoroughly alarmed, and sent word

posthaste to his friend at Syracuse. Immediately Gelon saw that the invader must be repulsed or the whole of Sicily would be ravaged. So he set out with his full force across the island, and joined Theron.

Now it happened that the commander of the Carthaginians was not a regular general, but a magistrate, though a very able man. He was Hamilcar, quite noted in history. On his way Gelon had captured a messenger with letters from the city of Selinous. From him he learned that a squadron of horse was on the way to assist Hamilcar. At once he determined to take advantage of this. So on the morning of the day the horsemen were expected, he sent his own squadron to Hamilcar's camp disguised as Phœnicians. They were at once admitted; but no sooner were they inside than they attacked the ships and set them on fire. Then Theron marched his men out suddenly, and attacked the camp on the other side. Both parties fought desperately all day. As Herodotus tells us, when Hamilcar, who was offering sacrifices to his gods during the battle, heard that his troops were in full retreat, he threw himself into the fire as the most costly offering he could make. This was very grand. The Carthaginian Diodorus version, however, relates that the soldiers of Gelon caught Hamilcar and sacrificed him to their god Poseidon. At any rate it was a crushing and humiliating defeat and Carthage did not attempt a similar invasion again for seventy years.

Strangely enough, the Greek historians say the battle took place on the same day that Xerxes' great fleet of warships was shattered by the Greeks at Salamis, near Athens. Xerxes, from the cliff above, beheld the disaster in terror and started in desperate haste to lead his mighty army, back over the Hellespont. The Greek sea fighters and Leonidas with his 300 Spartans at Thermopylæ had struck terror to his heart. The Persian never came again. This Battle of Himera took place in 480 B. C.

The Greek cities now entered upon what might be called the golden age of Sicily. They expelled the tyrants who for 18 years had held sway. Science, art and architecture made rapid strides. We have in the island at this time the great poets and philosophers, Pindar, Simonides, Aeschylus and Epicharmus. For 50 years the island enjoyed the most unparalleled prosperity. Their commerce

grew with Egypt, Rome, Carthage and Old Greece. Magnificent temples, theatres, amphitheatres and other public buildings which compel the admiration of the whole world, besides the palaces of the rich, were built in every chief city. The beautiful temple of Athene in Syracuse, built then, is now the Metropolitan Church. There seemed now to be only one cloud in the sky and that was Athens, then the most civilized and most magnificent city of the world. She was jealous of the rapid strides being made by Syracuse, and gradually made the determination to add to herself this gem of the sea which was fast becoming the dictator and the nabob of the Mediterranean. It was during this period that the great orator and scholar, Gorgias of Leontini flourished. He established schools of rhetoric both in Sicily and in Old Greece.

Syracuse was now preparing to take possession for herself of the cities of Rhegium and Leontini, and they, as allies of Athens, sent Gorgias to that city to secure her aid. So eloquent and persuasive was he, that the Athenians now made up their minds to begin the work of invasion, and sent a few war ships to Leontini. Gradually the Sicilian towns took sides, and the cities of Old Greece formed themselves into two leagues, one led by the Athenians and the other by the Spartans. About this time Syracuse took advantage of a dissension in Leontini, and annexed the city to herself. Athens sent envoys to Segesta, one of the Sicilian cities allied against Syracuse. They saw in the temple of Eryx a great number of silver gilt vessels, which the Segestans told them were solid gold. They also attended many banquets, given by private citizens, at which they were astonished at the wealth of golden vessels and treasure each possessed. But the wily Segestans were loaning these golden vessels among each other, and really possessed only one set. So the envoys returned to Athens with Arabian Nights like stories of the fabulous treasures of Sicily, and set all Athens on fire with enthusiasm at the prospect of capturing an island where existed such vast wealth. Their leader was the famous Alcibiades, a most dangerous counselor; for he was brave, eloquent and enterprising, but utterly unprincipled and supremely selfish and fickle. He urged an expedition, but Nicias the general of the army, a very conservative man, opposed it. But Alcibiades prevailed, and was

sent with Nicias in command of the greatest fleet that ever sailed from a Grecian port, 136 battleships and about 7,000 troops. But they did not find the prospect so rosy after arrival at Sicily. The formidable size of the fleet scared the Greeks of Sicily, and they held back from allying themselves against Syracuse. Nicias sailed all along the east and south coasts without gaining many friends and then went into winter quarters at Katana (now Catania). Alcibiades was summoned home on the famous charge of impiety to the gods (for disfiguring the statues of Hermes). He then ran away and hid himself in Sparta. The great leader at Syracuse was Hermocrates. His diplomacy kept the Greeks of Sicily together, and he proved himself one of the greatest statesmen the island ever had. While Nicias was waiting for something to turn up, Hermocrates was building fortifications and disciplining his army. This was the winter of 415-414 B. C.

Nicias appealed to Athens for more men, ships and money, and a second expedition was sent to him. There was a rocky height above Syracuse, called Epipolai, and this Nicias took by sudden storm. Then he built a wall across to hem the city *in* and the Syracusans built a counter wall to keep the Athenians *out*. The reader should bear in mind that in its greatest days Syracuse was nearly twenty miles in circumference. So desperate had become the siege, that the Syracusans were on the point of surrender, when there sailed into the Little Harbor a ship from Corinth with news that a fleet was on the way to bring succor from that city; and Gylippus the general was already collecting a land force among the Greek cities of Sicily to attack the Athenians.

It was the darkest hour in which this deliverance had come, and instantly all Syracuse was filled again with hope. When Gylippus arrived, he forced his way into the city around Nicias' incomplete wall. He was a Spartan and so much faith was placed in a countryman of the 300 who fought at Thermopylæ, that he was made commander-in-chief, and before long had a wall built, which hemmed in the Athenian camp next to the Great Harbor. Nicias now wrote to Athens asking to be relieved and advising either to abandon the siege, or send another army, and sure enough, another army was sent. While they were on the way Gylippus attacked the Athenians

both by sea and land. Success for the Syracusans now seemed sure, when the new Athenian fleet sailed into the Great Harbor and again the tables were turned.

The new general Demosthenes now made a night attack on the heights back of the city from the north. They took two forts, when suddenly the Syracusans got hold of the watchword, and made such good use of it that the Athenians could not tell friend from foe and were thrown into terrible confusion. Some were hurled over the precipice; others who were ignorant of the precipitous pathways back to the camp were captured at daybreak.

The generals now proposed to return to Athens; but Nicias would not consent. At this moment there was an eclipse of the moon and Nicias persuaded his fellows that it portended great calamity to Syracuse. Few in those days knew what caused an eclipse. The soothsayers advised that they must stay another 29 days. At last the final struggle took place in the Great Harbor, within which the Athenian fleet was blockaded by the Syracusans. There were 110 Athenian battleships against 80 of those of Syracuse. All day long the struggle of life and death went on. It was the death grapple of the world's two most powerful cities. Toward night the Athenians gave way and retreated to their camp on shore. Their invasion was over, and their proud fleet captured.

There were still 40,000 men in the camp and they retreated into the interior but were in a few days either captured or scattered. It is said that the generals committed suicide, rather than be taken prisoners.

THE SECOND CARTHAGINIAN INVASION, 413-404 B. C.

Seventy years after the first victory of Gelon over Carthage at Himera, the Carthaginians again invaded Sicily. This time they were led by the great general Shophet Hannibal, the grandson of Hamilcar, who was defeated so ignominiously at Himera. He landed at Lilybæum with a vast army, marched upon Selinous and took it almost before Sicily was aware of his presence. The citizens were massacred and the city sacked. Then Hannibal started northward across the island for Himera. Before he reached that town,

5,000 men-at-arms under Diokles arrived to succor it from Syracuse. They met Hannibal under the walls and an indecisive battle took place. Just then a Sikelite fleet appeared off the harbor, and Hannibal announced that he would abandon the siege and sail straight for Syracuse. This alarmed Diokles and he made arrangements by which the people of Himera could escape by boat to Messina, while he himself returned to protect Syracuse. Hannibal's trick succeeded. Before half the people had left the city he broke into it, burned the temples and laid all else in ruins. Then he made slaves of the women and children, and took 3,000 men to the spot where his grandfather Hamilcar had died, tortured and offered them up as a sacrifice to the ghost of Hamilcar. At Selinous today there are magnificent ruins, but of Himera there is hardly one stone left to mark its locality. This done, Hannibal returned to Carthage, where he was greatly honored for this horrible deed.

And now all Sicily knew that a great invasion from Carthage was at hand, and it was not long delayed. The Greek cities hastened to prepare for it. Hannibal was sent with an army to lay siege to Agrigentum. The expedition it is said comprised 1,000 ships of all kinds, and 100,000 men. The plague attacked the army and Hannibal died in camp. Hamilcon who succeeded him in command sacrificed his own son to Moloch. Thirty thousand men marched from Syracuse and other cities to succor the city. Dissensions broke out between them and the leaders in the city and they marched back, leaving the proud city to its fate. The citizens deserted the town and Hamilcon plundered it.

This juncture produced a man most famous in history, namely Dionysius the Tyrant. He began his rule at Syracuse in 405 B. C. when a fearless and strong man was needed to check the aggression of Carthage. Agrigentum the second city of Sicily had fallen.

Dionysius played into his own hands with great skill, and shrewdly made friends of the common people. In order to build up Syracuse, as soon as he was appointed general he marched against Hamilcon, and then persuaded each city of the southern coast to send its inhabitants to Syracuse, because he told them that was the only city that could withstand such a huge invasion. But

when he himself returned to Syracuse he found the gates shut against him. He burned one of them down and after entering, put to death his chief personal enemies.

The treaty which he made with Hamilcon was a remarkably shrewd one, *for Dionysius*. It made the south coast cities Carthaginian, the other Greek cities independent. But Carthage agreed to give Dionysius a *guaranty of his own dominion* over Syracuse. In securing this the wily despot expected to establish himself so firmly with the help of Carthage, that in the end he could easily win back all that the Greek cities had lost. He ruled for 38 years and accomplished what he had set out to gain.

No war was ever more destructive to human freedom and civilization, for the loss of liberty and territory turned the attention of the people from arts and commerce to the practice of war, and an ambition for dominion and conquest. Under him Syracuse became the world's most powerful and renowned city of his age.

To establish himself the more impregnably, Dionysius built the whole island of Ortygia into a fortress, and he himself lived in a castle at its end. With marvelous rapidity he extended the walls of Syracuse and soon the city was an unconquerable castle of itself. Then he gathered mercenaries from all parts of the Mediterranean, chiefly from Italy, and placed them as guards in the forts and dependent cities. When a revolt occurred in any locality he removed the disaffected population to another city and gave their place to colonist strangers from a distance. Meanwhile he was constantly gaining the good will, not of the oligarchs (or aristocrats) but of the common people.

It was in the memorable year of 387 B. C. that Dionysius made himself the master not only in all Sicily but in Greek Italy also, by taking Rhegium (now Reggio). He became the ally of Sparta and by means of his mercenary armies secured a vast power and influence among the western and northern nations. He built larger war vessels and improved greatly the engines of war and military tactics. From his example, Alexander the Great learned those principles of union and military concentration which made him later the master of the world. Under Dionysius, however, Sicily was

racked with wars both internal and with Carthage. He even made expeditions against the nations on the Adriatic sea.

At the height of its glory Syracuse was a city of 500,000 population or about the present size of Boston. Its circumference was nearly 22 miles. For ten years after Dionysius' death his son Dionysius the younger continued master of Syracuse. Then a deliverer, Timoleon of Corinth came to the rescue. He drove out the tyrants from the cities of the island, compelled Carthage to agree to a peace and restored the cities to independence.

So far Rome has hardly entered into the history of Sicily, as she was still a second rate power. But now she cast her eyes southward, and determined on the possession of the beautiful island. In 270 B. C. the master of Syracuse was Hieron, a statesman of great judgment. He made war against Messina and Rhegium, then controlled by a colony of pirates and freebooters. These two cities made an alliance with Rome, and Hieron at first made an alliance with Carthage. In the second year of the war (263 B. C.) he found himself so hard pressed that he changed sides and entered into an alliance with this great rising city of the north. This alliance marks the *downfall of Greek supremacy.* But the kingdom of Sicily under this alliance flourished commercially as never it had flourished before. After the first Punic war, which lasted 23 years, Carthage abandoned Sicily, but the Romans ruled the captured towns with a rod of iron. But Hieron remained a faithful ally to that city until his death. Under his son Hieronymus, Syracuse revolted from Rome, but it was recaptured by the Consul Marcellus. Sicily now becomes a Roman province. Her fields are tilled by the slaves of the rich. Their masters naturally degenerated from the liberty loving Greek to the proud and pampered Roman patrician.

ARCHIMEDES OF SYRACUSE.

Archimedes, the greatest scientist of Sicily, was probably the greatest man of his age. We do not know all that he did, but we *do* know that as a scientist and discoverer his achievements were as important as those of Edison or Robert Fulton. His greatest triumph was connected with the principles of specific gravity.

Hiero the Tyrant of Syracuse bade him discover, without their removal, whether the gems in his crown were genuine or imitations. After many unsuccessful experiments, it suddenly occurred to Archimedes that the problem could be solved by a comparison of the weight of the crown with that of the water it displaced when immersed. This brilliant discovery so overjoyed him that, though taking a bath at the moment, he rushed through the streets without his garments, crying "Eureka!" (I have found it!) Besides this he made many discoveries in geometry, mathematics and engineering.

Another of his triumphs was the building of a magnificent ship as a present for Ptolemy, King of Egypt. This was said to be of 4,000 tons burden, with 20 banks of oars. It had 3 decks. On the upper one stood catapults that could launch rocks, like cannon balls, and heavy wooden projectiles 20 feet long. It was a magnificent floating palace, as well as a powerful battleship, and even contained a miniature temple to Venus, and a marble bath.

The fate of Archimedes is touching. While Marcellus was sacking the city, he sent a soldier to find the great scientist, intending to take him to Rome. The grand old man, when found, was endeavoring to drown his grief in a deep problem of geometry. The brutal soldier stepped on the figure drawn in the sand, and when the great engineer expostulated, he impaled him with his spear and killed the greatest man in the world.

When Rome sent Marcellus to capture Syracuse, Archimedes was the man who planned the defence. Marcellus had many newly invented engines for attack, but the ingenuity of Archimedes devised new weapons and machinery that foiled every effort to scale the walls. It was said that by throwing sunlight through a combination of mirrors and lenses, he set fire to the Roman battleships as they lay in the Great Harbor.

Another great man of Sicily was the poet Pindar. Then the sweetest of all the world's poet-songsters was Theocritus, made famous by his glorious songs of country and pastoral life. Not far behind him were the poets, Moschus and Bion of Syracuse. Then in Agrigentum Empedocles was in his day peerless as a philosopher.

SICILY IN MEDIEVAL TIMES.

After becoming a Roman province, the glory which Sicily had attained with her independent Greek cities passed away. We give a brief summary of events to enable the reader to cross the bridge intelligently to another period of glory which we believe has dawned on the Island, since Garibaldi freed her from the Bourbons, and the load has been illuminated by the light of education. From the second century B. C. until the fifth century A. D. little occurs of much interest.

In the year 219 B. C. came the second Punic war. Instead of invasion as usual through Sicily Hannibal determined to capture Rome by allying himself with the savage hordes of Gaul. To this end he took Saguntum, a Greek city in Spain. Then with an immense army and huge battalions of cavalry and elephants of war, he crossed the Pyrenees, skirted the shores of France, and descended over the Alps into Italy. Some of the Gauls joined him. Then came the terrible battles of the Ticinus river, Thrasymine and Cannae. These were dark days for Rome. Hiero ravaged the coasts of Africa, and sent to Rome many shiploads of grain, an army of slingers and archers, together with a *golden Statue of Victory weighing* 320 *pounds*. This famous invasion of Italy was a failure, because Hannibal, though the world's greatest strategist, was outgeneraled by Fabius, who wasted the Carthaginian army without fighting it. In after years, Scipio Africanus made a counter invasion and utterly destroyed the power of Carthage forever.

SICILY UNDER THE ROMANS, GOTHS AND SARACENS.

With the capture of Syracuse by the Romans under Marcellus (212 B. C.), ended the independence of the Greeks in Sicily. The island was the first province which Rome added to herself, and Sicily may thus be called the corner stone of her mighty empire. From this time forward that empire grew rapidly until, at the advent of Christ, Rome had reached the summit of her power, and was mistress of the whole civilized world. It is regarded by many historians as a singular fact, that these two greatest events took place simultaneously.

Between 135 and 100 B. C. there were two great slave revolts in the island, showing how vast a number of bondmen had been captured and brought here from Rome's conquests to till the corn lands.

In 73 B. C. so oppressive was Verres, the Praetor (Governor) toward the Sicilians that he was tried by the senate for his rapacity and extortions and exposed by the great oration which made Cicero so famous among orators. In B. C. 43, Sextus Pompeius seized the island with Rome's navy, of which he was sole commander, and held it against Rome for seven years; not as governor, but as a freebooter and a pirate.

It was in the latter part of the first century that St. Paul the Apostle made a sojourn at Syracuse of three days on his way to Rome as recorded in Acts 28:12. Christianity spread over the island in the third century. There is a very old church in Syracuse—St. Marcien—and tradition tells us that Paul preached in this at the invitation of the bishop, Marcien. A small round church at Catonia is also shown as one which St. Peter consecrated when visiting Sicily from Rome. There were many martyr saints of Sicily, and the early Christians were compelled to worship in the catacombs of the cities and the grottoes of the mountains. There was joy throughout Europe and Christian Asia when the great emperor Constantine gave his sanction to the Church of Christ.

It was at this period that the Goths, Vandals and Ostragoths swept with their hordes over Southern Europe. In 440 the Ostragoths landed at Palermo under Geiseric. They held the island for nearly 100 years. The Roman Empire was now governed from Byzontium (Constantinople) as the western half of the empire was in the hands of the Goths and Vandals.

About the year 527 the great Justinian became Emperor. He sent the famous General Belisarius to Sicily, who recaptured the island. He drove the Visgoths out of Palermo by hoisting boats to the tops of the tall mastheads of his ships, whence his archers shot at the garrison over the low ramparts with their crossbows. Then Belisarius captured Rome from the Goths but was recalled to Constantinople and disgraced by Justinian. Rome was lost and retaken by the Goths many times, and their General Totilo recap-

THE BROTHERHOOD OF NATIONS.

British sailors from the "Afonwen" making a heroic rescue. The children on a tottering balcony were persuaded to let down a cord, tied to a stone, and were thus able to pull a rope to the top of the building and fasten it there. Then two of the men went up hand over hand, mounted the balcony and lowered ten children to safety, together with a woman and a man.

A ROYAL RESCUER.

King Victor Emmanuel of Italy rescuing a victim pinned down by the wreckage.. The devotion of this ruler to his stricken people won the hearts of all.

tured Sicily and ravaged it. It was a reign of terror in which the Goths carried off the herds of the peasants and all the portable wealth of the cities to his strong fortresses in Italy.

In 663 Constans II removed from Constantinople to Syracuse. So for several years that city was the head of the world's greatest empire. In 669 Syracuse was plundered by an invasion of the Arabians. In 830 Palermo was taken by the Saracens and by 873 the whole island, including Syracuse was controlled by them. It is a fact not to be denied that Sicily, in the early days of the Papacy was for good reason called the "Asylum and Paradise of the Church of Rome," for she held large estates and many rich monasteries in the island, and the mother of Pope Gregory the Great (sixth century), was a Sicilian of great wealth. Contemporary with Pope Gregory was the False Prophet Mahomet of Mecca, twenty years old when Gregory was elected Pope. Two hundred years later the Mohammedans ruled all Sicily but so deeply had Christianity taken root that the Moslem was compelled not only to tolerate it, but to hold inviolate Church properties.

It was in the eighth century that the War of the Tinages took place in Italy, and Leo, Emperor of the East and West Empires, sent an army from Constantinople into Italy, to compel the pope to abolish holy images from all the churches. All Italy and a part of Sicily rallied to the defence of the Pope, Gregory the Second. Several of the Bishops of Sicily were martyred for their adherance to Gregory. Methodius of Syracuse, was imprisoned seven years, but in the end became *Patriarch of Constantinople.* It was at this period that the Greek Church broke away and became independent of the Roman Catholic and it was a Bishop of Sicily, Gregorius Abesta, who was the original cause of the difference.

NORMANS IN SICILY.

Probably there never were braver fighters in the history of the world than the Normans, who made conquest and war a profession. Robert and Roger of Hauteville, were sons of Tancred the mighty champion of the first Crusaders. They came to Italy by invitation of their brothers, who had taken Apalia. In ten

years (1090) they had subdued the island of Sicily. The Son of Roger was crowned at Palermo in 1130 as King of Sicily. Under his reign, which was very liberal to several conflicting nationalities and religions of Sicily, there was great prosperity in the island. The Normans controlled the island for nearly 200 years and under them there was a great advance in art, literature and science. King Roger himself was a marvelous leader. His Saracen subjects were loyal to him and after submitting to him even fought for him at times against the Moslem.

From the time of the Normans in Sicily, there is a most bewildering series of changes in the masters of the island until 1860 when the patriot Garibaldi captured Naples and Sicily from the Bourbons, and restored them to the Kingdom of Rome under Victor Emanuel. At one time it belongs to the Spanish house of Arragon. Then it is ruled by a French princess, then reverts to Spain, becomes a part of the kingdom of Naples, Sicily and Arragon under Rene of Anjou. At one time it is a part of the realm of Charles V. of Germany and ever Great Britain held a protectorate over the island in the early part of the 19th century.

CHAPTER XIII.

AMERICAN REPRESENTATIVES.

The American Embassy at Rome—The American Consulates in Italy and Sicily —The Italian Embassy at Washington.

The American Embassy at Rome is in charge of Ambassador Griscom. Mr. Griscom is a native of Pennsylvania, his residence being at Philadelphia. His family is very wealthy. Mr. Griscom served as Secretary of American Legations and Embassies at different capitals in foreign countries, in the beginning of his diplomatic career. His first appointment as Ambassador was at Tokio, in Japan, where he served our country with distinction. Mr. Griscom was transferred from Japan to Rome as our Ambassador there, in succession to George Von Meyer, who was appointed Postmaster General and thus became a member of President Roosevelt's cabinet.

Ambassador Griscom arose to the exigencies of the situation presented by the Sicilian-Italian earthquake disaster and gained world-wide distinction as one of the principal figures in the relief measures promptly set on foot by the United States government.

The United States government maintains embassies at London, Paris, Tokio, Vienna, Rio de Janeiro, Berlin, St. Petersburg, and Constantinople, as well as at Rome, making nine embassies in all. At Buenos Aires, Brussels, La Paz, Santiago de Chile, Pekin, Bogota, San Jose, Havana, Copenhagen, Port au Prince, Quito, Athens, Guatemala, Haiti, Honduras, Monrovia, Mexico, Tangier, The Hague, Christiana, Montevideo, Teheran, Lima, Lisbon, Roumania and Servia, Bangkok, Madrid, Stockholm and Caracas, as well as a diplomatic agent at Cairo, Egypt, making in all thirty legations and one diplomatic agent.

An Ambassador ranks higher and has more power when representing his government, than a Minister. These diplomatic officers, in the performance of their duties, carry on the negotiations between their government and the country to which they are

accredited as regards treaties and many matters pertaining to diplomacy. They have the power to issue passports to American citizens traveling or residing abroad, and in case of trouble, it is their duty to protect an American citizen and American interests. A Consul-General or Consul of the United States does not carry on negotiations directly with the country to which he is accredited, but does this through the Embassy or legation at the capital of the country to which he is accredited. An American citizen getting into any kind of difficulty in a consular district abroad, would take the matter up with the American Consul-General or American Consul nearest to him. The American Consular Officer would then take it up with the Embassy or Legation of the United States at the capital of that foreign country.

The duties of American Consuls-General and Consuls are rather commercial than diplomatic. They are sent abroad at centers where goods are produced to be shipped and sold into the United States. All such goods consigned to the United States must be invoiced before a United States Consular officer. The exporter of such goods makes declaration as to the value of the goods so that the duty may be determined and paid at our ports. Notwithstanding this declaration as to the value of the goods shipped, made before the United States Consul, the goods are subjected to appraisement before the appraisers, under the Collector of Customs, at each port in the United States, where the ships carrying these goods to our country land.

United States Consuls are also instructed to investigate the commercial conditions in the country, or district, to which they are accredited, with a particular view to increasing the trade of the United States, so that we can sell more goods abroad. That is why our manufacturers and business men throughout the United States have such a great interest in an efficient and adequately paid consular service. At the present time none of our diplomatic or consular officers, who perform their duties properly, can live upon the very niggardly salaries provided by the United States Congress.

The Department of State appointed Mr. James E. Dunning, the United States Consul at Milan, Italy, to be acting consul at Messina, after the death of Consul Cheney, who lost his life, as noted

in another chapter, in the earthquate disaster. Mr. Dunning acted under the direction of Ambassador Griscom at Rome, in the work of rescue and the distribution of supplies sent by the United States Government and accepted by the Italian Government.

The United States has two consulates in Sicily at Palermo and Messina, and ten in Italy, as follows: Castellamare di Stabia, Catania, Florence, Genoa (the Consulate-General was changed from Rome to Genoa July 1st, 1908), Leghorn, Milan, Naples, Rome, Turin and Venice.

United States Ambassadors, Ministers, Consuls-General, and Consuls are all appointed by the President of the United States and must be confirmed by the United States Senate. Upon reaching their diplomatic or consular posts, they must secure an exequatur, or authority to act, from the Government to which they are accredited.

Italy has an Embassy at Washington in charge of Signor Edmondo M. des Planches, who has been the Italian diplomatic representative at Washington for a number of years. He is now the Dean (the oldest member), of the Diplomatic Corps at our National Capital. Thirty-eight countries in all have either Embassies or Legations (their Ambassadors or Ministers presiding over them) at Washington.

Ambassador des Planches, at Washington, carried on the negotiations with our State Department and at the White House, regarding the United States relief expedition sent to Italy for the survivors of the earthquake and regarding the visit to Italy of the United States Naval fleet, which at the time of the catastrophe, was just entering the Suez Canal en route to Italy. As noted in another chapter, the mission of our great fleet was changed from one of friendliness in a social way to a visit of friendship in a charitable way.

During the social season at Washington, after the sad calamity which had befallen Italy, Ambassador des Planches modified all of the social engagements of the Embassy for the winter.

CHAPTER XIV.

ITALY AND UNITED STATES.

Commerce Between Italy and the United States—Imports and Exports—Emigration in Past Ten Years, etc.

The commerce between Italy and the United States is very great. The United States, however, sells more goods to Italy in value, than Italy sells to the United States. In 1906, the latest complete figures available, we sold to Italy about seven million five hundred thousand dollars more of our products than Italy brought into our country.

The total value of the exports from Italy to the United States, in the year named was $40,597,556. The United States exported to Italy goods that brought into our country $48,083,740 in money. The chief articles of commerce sent to Italy from the United States are cotton, grain and other food products, timber, machinery, copper and iron. Italy sends to us silk, both raw and manufactured, fruits, wine, etc.

There are two regular Italian steamship lines that ply between Genoa, Naples and New York, besides many freight carrying steamers. Nearly all of the principal Trans-Atlantic lines conduct an up-to-date passenger service, during the winter months, between New York, Boston and the Italian ports named, for the benefit of the thousands of American tourists who visit Italy each winter. These steamers carry freight also. The Americans who visit Italy each year spend millions of dollars in that country. This has resulted in building up industries in Italy for the manufacture and sale of curios and all sorts of portable articles, characteristic of the kingdom, for sale to the Americans, who always return home with a plentiful supply of souvenirs for their friends left at home. To say that the American visitor, with money to spend in Italy, is welcomed by the populace there, is to express it but mildly.

An enormous sum of money, in the aggregate, is sent from the

United States each year by the industrious Italians, who have settled in this country. This money is sent to relatives, who had never before been in possession of so much money. With this constant stream of money pouring in and the freedom with which the American visitor spends money, while traveling in Italy, the idea among Italians has become deeply rooted, that every American must be rich.

It is estimated that New York City and its environments has close to a half million Italian inhabitants. Following are the number of Italians living in the cities named according to the census of 1900: Baltimore, 2,042; Boston, 13,738; Buffalo, 5,669; Chicago, 16,008; Cincinnati, 917; Cleveland, 3,065; Detroit, 905; Milwaukee, 726; New Orleans, 5,866; Philadelphia, 17,830; Pittsburg, 5,709; St. Louis, 2,227; San Francisco, 7,508. The total Italian population of the United States, according to the last census, was 1,190,301. It will be seen that New York City and its suburbs contain more than one-third of this total. There are five Irish born inhabitants living in the United States for each Italian. The total Irish population, foreign born, was 1,673,409; born of Irish parents 4,001,461, or a total of 5,620,900 Irish all told. This is more than the population of Ireland. There are about three times as many Italians living in the United States as we have Indians.

The emigration from Italy during the last census period of ten years, was very great. During the great financial depression of the fall of 1907, tens of thousands of men in our large centers of population were thrown out of employment. This affected the Italians very greatly. Owing to the higher cost of living in the United States, as compared with Italy, large numbers of Italians crowded the steamships bound for Italy, where they could live upon their accumulated savings and make their money last longer than if they remained in the United States without employment. This resulted in hundreds of thousands of dollars being withdrawn from our savings banks and taken to Italy.

For a time the steamships that formerly carried from five hundred to two thousand emigrants in the third class from Italy and other foreign countries brought very few into our country. The tide of emigration had set in in the other direction. The third

class, heretofore practically empty in the steamships bound to Europe from our ports, were crowded with Italians and others, returning to their old homes to seek shelter in the small homes of parents and relatives.

It is noteworthy, however, that many of the more prosperous of these returning Italians, who came to America in the steerage or third class, were now traveling in the second class cabin, owing to the prosperity they had enjoyed in the United States.

We are apt to class the Italians with those we see acting in our country as fruit vendors, boot blacks and hand organ men, and therefore consider the Italians an inferior class. This is not just to the Italians, as a whole. Naturally, the vast majority of those who come to our shores are of the peasant class, with no social or other standing at home. While we have many cultured Italians of the highest intelligence living in our country, it is true that the most prosperous of the Kingdom have no reason for leaving their own country. In our every day life, in the United States, we do not come into contact with the better class of Italians, as we do with the peddlers who have something to sell us, to shine our boots or to get a few pennies for playing the hand organ. In the same way, we are prone in America to do all foreigners coming to our country, an injustice.

It is when we, ourselves, either visit or live in a foreign country that the word "foreigner" has an entirely different shade of meaning from what we are accustomed to give it when we are at home. When we land in Italy, we are "foreigners."

CHAPTER XV.

ITALY.

Historical Sketch of Italy—Its Language, Art and Music—Paintings and Sculpture.

Italy, or more correctly Italia, is the name that has been applied in ancient and modern times to the great peninsula that projects from the mass of central Europe far to the south into the Mediterranean Sea.

Sicily may be considered as a mere continuation or appendage of the continental promontory. Italy's greatest length is from northwest to southeast, in which direction it measures 718 English miles.

The peninsula of Italy, which forms the largest portion of the country, nowhere exceeds 130 miles in breadth, while it does not generally measure from 90 to 100 miles across. The southern extremity of the peninsula is called Calabria.

The area of the present kingdom, exclusive of the large islands, is 93,640 square miles, or not quite so large as the State of Colorado. The total population being about 33,000,000, it will be seen that the density of population per square mile, is very large.

THE TERRITORIAL DIVISIONS.

The kingdom is divided into the following sixteen compartimenti. These compartimenti are subdivided into 69 provinces.

1. Piedmont: Alessandria, Cuneo, Novara, Turin.
2. Liguria: Genoa, Porto Maurizio.
3. Lombardy: Bergamo, Brescia, Como, Cremona, Mantua, Milan, Pavia, Sondrio.
4. Venice: Belluno, Padua, Rovigo, Treviso, Udine, Venice, Verona, Vicenza.
5. Emilia: Bologna, Ferrara, Forli, Modena, Parma, Piacenza, Ravenna, Reggio.
6. Umbria: Perguia.

7. Marches: Ancona, Ascoli Piceno, Macerata, Pesaro-Urbino.
8. Tuscany: Arezzo, Florence, Grosseto, Leghorn, Lucca, Massa-Carrara, Pisa, Siena.
9. Latium: Rome.
10. Abruzzi and Molise: Aquila, Campobasso, Chieti, Teramo.
11. Campania: Avellino, Benevento, Caserta, Naples, Salerno.
12. Aputia: Bari, Foggia, Lecce.
13. Basilicata: Potenza.
14. Calabria: Catanzaro, Cosenza, Reggio.
15. Sicily: Caltanisetta, Catania, Girgenti, Messina, Palermo, Syracuse, Trapani.
16. Sardinia: Cagliari, Sassari.

It is estimated that the growth of the population of the territory now forming the kingdom is represented with some approach to accuracy in the following table:

1770	14,689,317	1838	21,975,205
1795	16,256,974	1848	23,617,183
1800	17,237,421	1858	24,857,417
1816	18,380,995	1861	25,016,801
1825	19,726,977	1901	32,500,000

It will be seen that the population of the kingdom has more than doubled since 1770.

While the mass of the Italian population is engaged in agricultural pursuits, an unusual proportion of the inhabitants are congregated in the towns. The Italian, somewhat like the American, is no lover of the country; he dreads, of all things, an isolated dwelling.

If he cannot live in the capital, then in a provincial city; if not, in a country town, then in a village—only not in a country house.

Land owners, farmers and most of the laborers are huddled together in their squalid boroughs and hamlets; and the peasants have often a journey of several miles before they reach the fields intrusted to their care, though this tendency is now less marked

than formerly. At the same time the number of very large cities is comparatively small.

In the point of population Naples ranks first, and it is a very important seaport and commercial city. Genoa is also a great seaport, and has an extensive commerce. Genoa has the benefit of an enormous trade at Milan in the far north of Italy, probably the most progressive city of the kingdom. It requires an average of more than 500 freight cars a day to handle the enormous business transacted at Milan. Genoa is the seaport city for Milan, Turin and all of northern Italy, as well as for Switzerland, and to a certain extent beyond.

There are only 22 towns in Italy having a population of sixty thousand and upward. Leghorn is an important seaport and commercial city. With the exception of four large towns belonging to Sicily, the greater number of the cities of the kingdom are situated in the north.

Palermo is an important seaport in Sicily, and Messina was an important one.

It is estimated that Italy produces about 140,000,000 bushels of wheat a year. The average per acre is only about 12 bushels, which would be considered less than half a crop in the United States.

Next in importance to wheat comes maize, the most recently introduced of the cereals. The annual yield of maize is about 85,000,000 bushels.

The cultivation of rice is less widely distributed. Rice production requires about 107,000 gallons of water per annum for every acre and its cultivation is found in many places to be extremely prejudicial to the healthiness of the locality. This prevents rice growing in certain communities. In certain favorable regions, however, it forms the predominant crop. The total production of rice averages about 27,000,000 bushels a year.

Neither barley nor rye is produced to any extent. More than a fourth of the acreage, and nearly a third of the product of barley and rye amounting to about 18,000,000, belong to Sicily. About 19,000,000 bushels of oats are produced annually.

The manufacture of macaroni and similar food stuff is well known as a characteristic industry. It is pretty extensively dis-

tributed, and is carried on in very primitive fashion. The extent of the industry may be judged from the fact that, while the Italians themselves consume enormous quantity of macaroni, they are at the same time able to export from fifty to one hundred thousand quintels of "pastes."

The United States is a liberal purchaser of macaroni manufactured in Italy. We ship to Italy large quantities of wheat which is made into macaroni, as Italy does not produce enough wheat for home consumption. It is reasonable to say that American wheat is shipped to Italy, manufactured into macaroni and a considerable quantity of it, in macaroni form, is sent across the ocean back to the United States to be sold to us. This is also true of American grown cotton. Italy purchases considerable quantities of American cotton, which is manufactured into cloth and sold to us after the duty has been paid at our ports.

The potato is now found as a common article of cultivation in nearly all the provinces of Italy. The crop averages about 20,000,000 bushels a year. Turnips are pretty largely grown for use as winter fodder for the cattle. Very little success has been made with producing the sugar beet in Italy.

The vine is cultivated throughout the length and breadth of Italy, but in not a few of the provinces its relative importance is slight. Italian wine is famous throughout the world, the United States being a liberal purchaser.

Next to the cereals and the vine, the most important object of cultivation is the olive. In Sicily, adjacent to Messina, and the provinces of Reggio, Catanzaro, Cosenza and Lecce this tree flourishes freely and without shelter; as far north as Rome it requires only the slightest protection; in the rest of the peninsula it runs the risk of damage by frost every ten years or so.

The proportion of ground under olives in the southern end of Italy averages about twenty-five per cent. The same is true of Sicily; that is, of the tillable soil. In the olive there is a great variety of kinds, and the methods of cultivation differ greatly in different districts. In some sections, for instance, there are regular woods of nothing but olive trees, while in middle Italy we have olive orchards, with the interspaces occupied by crops of various

kinds. The Tuscan oils from Lucca, Calci, and Buti, are considered the best in the world; and those of Bari, Umbria and Western Liguria rank next.

The cultivation of oranges, lemons and other citrus fruits is of somewhat modern date. In recent years this industry has been greatly developed. Sicily stands first in this respect. Reggio, Calabria, Catanzaro, Lecce, Salerno, Naples and Caserta are the continental provinces which come next after Sicily. In Sardinia the cultivation is extensive but receives very little attention.

Crude lime juice is exported from Italy to the amount of about 10,000 quintels annually, and concentrated lime juice to the amount of from 11,000 to 17,000 quintels. Essential oils are extracted from the rind of the agrumi, more particularly from that of the lemon and the bergamot; the latter, however, is almost confined to the province of Reggio, where the average production amounts to about 220,000 pounds.

A perfume called "Acqua manfa" or "Lanfa" is obtained from the distillation of the orange-flowers, and the petals are also made into a conserve at Syracuse. Of the agrumi in their natural state the exportation has increased.

In southern Italy almonds, carob-trees and figs are cultivated on a very extensive scale. Walnuts are mainly grown in Piedmont, and particularly in the province of Cuneo; hazels, on the contrary, have their greatest diffusion in the south, and particularly in the Island of Sicily and the province of Avellino.

In the matter of implements the Italian agriculturist is far behind. The old Roman plow, for instance, as it is described by Virgil and Columella, may still be seen in use in various parts of the country; in Sardinia the plow that figures on the ancient monuments of the island might have been copied from that at work in the fields. Great improvements, however, have taken place in the more progressive regions; iron has replaced wood, and coulter and share have been increased in massiveness. But even in the Veneto the heavy plow drawn by as many, it may be, as six pair of oxen cuts the furrow no deeper than nine inches.

Though Italy is so distinctively an agricultural country, and has been subject so long to regular process of cultivation, a large proportion of its arable land is still in a state of utter neglect. It is calculated that the aggregate of the more important districts ready to give abundant increase in return for the labor of reclamation amounts to 571,000 acres; and more than twice that quantity might be utilized.

The breed of cattle in Italy is known as the Podolian, usually with white or gray coat and enormous horns. In the mountain districts the cattle are much smaller and more regular in size. They are mainly kept for dairy purposes. The breeds of sheep vary in different sections.

The milk of sheep is used in Italy for human food. Certain grades of cheese are made from it. The sheep used for dairy purposes are tall, with hanging ears and arched faces. There are many goats raised in Italy and the milk is used extensively for human food.

The manufacturing industries of the kingdom are of considerable importance. Of chief note is the silk trade—though it has suffered greatly from the silk worm disease, which broke out in 1854. It is estimated that Italy at one time produced about 8,000,000 pounds of raw silk annually. This has been reduced to about one-half, but in very recent years the output has increased, but does not approach the former product.

As a silk producing country Italy ranks second only to China, and leaves all its other competitors far behind. The culture is carried on in at least 5,300 communes, and men, women and children are employed in the unwinding of the cocoons—an operation which was formerly effected by the growers themselves, but has now passed into the hands of those who can bring better appliances and more modern methods to bear.

Next in importance to silk industry stands the cotton manufacture. During our civil war the cultivation of cotton in Italy received a remarkable but temporary stimulus. It has been demonstrated that cotton cannot be produced in Italy with profit. The kingdom still secures the most of its supply of raw cotton from the United States.

Italy produces considerable wool, and while it exports about 1,700,000 pounds out of the country, it brings into the country, principally from South America, a quantity varying from 10 million to 20 million pounds each year.

The flax and hemp industries have been prosecuted in Italy for centuries. This work is in a very primitive state. Italy has long been successful in the manufacture of paper from linen and rags, according to the old-fashioned processes. The supply of home-made paper is far in excess of the demand, and there is a corresponding excess of export over import. Italy produces excellent blotting and packing papers. Considerable is done in the manufacture of leather and skins.

In 1868 a private company secured the exclusive privilege of manufacturing and selling tobacco, on condition of paying to the state an annual rent and a certain proportion of the gains. The company went out of existence a few years ago by limitation, when the state itself took up the manufacture and sale of tobacco, which is now a government monopoly.

The manufacture of oils is among the most flourishing of the minor industries. The manufacture of sugar is of limited extent. There are numerous distilleries, and a few manufactories of aerated waters. Many small brewing establishments manufacture only a limited quantity of beer. The iron manufacture has increased in recent years.

ART.

In the various ceramic arts Italy was at one time unrivaled, but the ancient tradition has long lost its primeval impulse; and even where the industry remains the art has for the most part perished.

As Rome is called "the cradle of the civilized world," so may Italy be considered, in a sense, the cradle of art. France has taken up and developed much of the art that originated in Italy.

The jeweler's art as a matter of course, received large encouragement in a country which had so many independent courts; but nowhere has it obtained a fuller development than at Rome.

A vast variety of trinkets—in coral, glass, lava, etc., is exported

from Italy, or carried away by the annual hosts of tourists. Much of our money is left in Italy by American visitors, in exchange for this kind of jewelry.

The copying of the paintings of the Old Masters is becoming an art industry of no small commercial importance in some of the larger cities.

The production of mosaics is an art industry still carried on with much success in Italy, which, indeed, ranks exceedingly high in the quality. The great works of the Vatican are especially famous (more than 17,000 distinct tints are employed in their production), and there are many other establishments in Rome. The Florentine mosaics are perhaps better known abroad; they are composed of larger pieces than the Roman. Those of the Venetian artists are remarkable for the boldness of their coloring.

FISHERIES.

As the coast line of Italy extends to about 3,937 miles (of which 1,048 belong to the island), the prosecution of the fisheries in the neighboring seas is carried on from a great many points.

The anchovy and sardine fisheries are extensive, but not as prosperous as formerly. As many as fifty sword fish may be caught in a single day off the coast of Sicily by a single fisherman. Each sword fish weighs on an average from 200 to 420 pounds.

Coral in great quantities is obtained and the Italian coral fishers extend their voyages to the African coast and the Islands of Cape Verde. Eels, soles, mullets and various other kinds of fish are obtained in enormous quantities.

CONDITION OF THE LOWER CLASSES.

Though mitigated to some degree by the mildness of the climate and the cheapness of certain articles of food, pauperism in its most painful forms is a widespread evil in Italy. At Venice, out of a total population of 152,000, 36,000 are regular recipients of official charity. The slums of Naples are foul and overcrowded. Nor is destitution confined to the cities. The condition of the agricultural laborers is in many cases deplorable. In the districts of Como,

A GARDEN TURNED INTO A HOSPITAL.

Hospitals were established at every available space and the doctors from the warships worked day and night tending the wounded.

IN THE HANDS OF FRIENDS.

Wounded survivors of the earthquake carried by "jackies" to safety and comfort.

STROMBOLI IN ERUPTION.

The great volcanic island north of Sicily now in eruption. This volcano has been quietly active for many years.

HASTENING FROM THE SCENE OF DISASTER.

Refugees moving from the stricken district with all their property they could save.

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THE SAN FRANCISCO DISASTER.

Photograph showing how 25,000 homeless people found shelter after the calamity—Notice the Bread Line where millionaires and paupers stood in line to obtain their daily rations serv ed by the Relief Committee.

Milan, Pavia and Lodi, the food of the laborers consists of maize bread, badly cooked, heavy and rancid, and thin soup composed of rice or "pasta" of inferior quality and vegetables often old and spoiled. In Southern Italy, says Villari, the peasants live in miserable houses, with a sack of straw for their bed, and black bread for their sole sustenance. Maize is the general foodstuff in the northern and central provinces, but begins to be rarer in Tuscany and Rome; it is again widely diffused in the upper provinces of Naples; but in Calabria and Apulia it forms the principal nutriment of scarcely a fourth of the communes, and in Sicily it disappears almost completely. In Piedmont, Lombardy and the Veneto it is used mainly in the form of polenta, but also in the form of bread, and in the Napoletano in the form of a finer kind of polenta. Lombardy, the Veneto, Emilia and the Marches are the regions where wheaten bread is least employed by the peasants. Barley is mainly consumed in Apulia and Calabria, rye in Sicily and Lombardy. In certain communes of the Marches and the Abruzzi acorns constitute the ordinary diet of the poor. Wheaten pastes are most extensively employed by the people in Liguria, Sicily, and the upper Neapolitan provinces. Animal food holds but little place in the dietary of the poor; and even in the house of the well-to-do peasant butcher-meat appears but seldom. According to Doctor Raseri, who has investigated the point by means of the customs returns and similar statistics, Sardinia is the region where animal food is most largely employed, and Sicily that where it is least.

Wine is naturally the prevailing drink throughout the country; but the extent of the consumption varies greatly from region to region, the average in the Roman province, Umbria, and Sardinia much exceeding that in the provinces of Naples and in Sicily. The use of alcohol is greatest in the Lombardo-Venetian cities; and it is there only that beer is of importance as a beverage. Cases of accidental death and of insanity attributable to the misuse of stimulants are much more frequent in the north than in the south or center, and in both respects Liguria has an unenviable pre-eminence.

The interest of the Italians is gradually being aroused in the sanitary condition of their cities and towns. Many of the provincial

capitals and cathedral cities are portentously filthy. Drainage and sewage works, however, are becoming matters of concern to a number of the more important communes; and such cities more especially as Naples and Catania are bestowing much attention to the subject.

EDUCATION.

The learning of the learned in Italy has always been very high, while the ignorance of the ignorant is profound. At the census of 1861 it was found that in a population of 21,000,000 more than 16,000,000 were persons absolutely destitute of instruction, and unable to read or sign their names. This condition, however, has improved since that time, although Italy, among the lower classes, as regards education, is as backward probably as most any other country of the continent of Europe. The ignorance, of course, is greater in the female sex than in the male. In 1866, 59 per cent of the married men were obliged to make their mark, 78 per cent of the women were in the same condition. In the more remote parts of the country matters were even worse than this. In Basilicata the illiterate class comprised 912 out of every 1,000 inhabitants.

The department of education thus had no light task to perform, but the progress that has been attained does honor to the government of Italy. The administration of the educational department is not so strictly centralized as in France. Under recent laws every commune of 4,000 inhabitants is bound to maintain a primary school; but as a matter of fact, some of the communes are too small and poor to have a school of their own, and are permitted to send their children to the schools of neighboring communes.

Elementary education is free, and in 1877 primary education became compulsory, so far as the condition of the communes allows. For the higher education Italy possesses no fewer than 17 national universities. Besides the seventeen establishments there are four free universities. In the United States poor young men and young women attend our universities and colleges. It is impossible for this class to do so in Italy; they are so very poor.

There are excellent colleges of medicine, law, engineering, etc. The great Italian public libraries are those of Turin, Milan, Naples and Florence.

LANGUAGE.

The Italian is the language of culture in the whole of the present kingdom of Italy, in some parts of Switzerland (the canton of Ticino, and part of the Grisons), in some parts of the Austrian territory (the districts of Trent and Gorz, Istria, along with Trieste, and the Dalmatian coast), and in the islands of Corsica and Malta. In the Ionian Islands, likewise, in the maritime cities of the Levant, in Egypt, and more particularly in Tunis, this literary language is extensively maintained through the numerous Italian colonies and the ancient traditions of trade.

The Italian language has its native seat and living source in Middle Italy, or, more precisely, Tuscany, and, indeed, Florence. For real linguistic unity is far from existing in Italy; in some respects the variety is less, in others more observable than in other countries which equally boast a political and literary unity. Thus, for example, Italy affords no linguistic contrast so violent as that presented by Great Britain, with its English dialects alongside of the Celtic dialects of Ireland, Scotland and Wales, or by France, with the French dialects alongside of the Celtic dialects of Brittany, not to speak of the Basque of the Pyrenees and other heterogeneous elements. The presence of not a few Slavs stretching into the district of Udine (Friuli), of Albanian, Greek, and Slav settlers in the southern provinces, with the Catalans, of Alghero (Sardinia), a few Germans at Monte Rosa, and a remnant or two of other comparatively modern immigrations, is not sufficient to produce any such strong contrast in the conditions of the national speech. But, on the other hand, the Neo-Latin dialects which live on side by side in Italy differ from each other much more markedly than, for example, the English dialects or the Spanish; and it must be added that, in Upper Italy, especially, the familiar use of the dialects is tenaciously retained even by the most cultivated classes of the population.

CHAPTER XVI.

SOUTHERN ITALY—ROME.

People are apt to think of Italy as a far southern country. We hear of it as "Sunny Italy." While it is true that the climate, as a whole, is much milder than in corresponding latitudes in the United States, the winters in the higher altitudes of the North, particularly around Turin, near the Alps, are sometimes quite severe.

The Northernmost part of the United States extends to latitude 49° N. and the Northernmost end of Italy adjoining Austria and Switzerland extends almost as far north as the forty-ninth parallel. But we are treating in this chapter particularly of the cities of Southern Italy.

The Southernmost end of the Italian peninsula does not extend beyond the thirty-seventh parallel of latitude. Nearly all of Sicily is further south than this furthest end of the peninsula, but Sicily does not extend southward quite so far as the thirty-sixth parallel of latitude.

The city of Rome is, approximately, in the same latitude as New York. The difference in time between Rome and New York is six hours; the difference in time between Rome and San Francisco is nine hours. When the people of New York are getting up preparing for breakfast the people of Rome are eating their noonday meal. When the people of San Francisco are retiring for the night the people of Rome are taking their breakfast the next morning.

The climate of Italy and Sicily is tempered by the effect of the sea currents of the Mediterranean and the warm climate of the African Continent across the sea to the South.

Modern Rome occupies the plane on each side of the Tiber and the slopes of the seven hills. Its geographical position at the observatory of the Collegio, Romano, is latitude 41° 53′ 52″ N., longi-

tude 12° 28′ 40″ E., and its height above the level of the sea, on the Tiber under the Aelian Bridge, is twenty feet.

The population in 1881 was 272,010. The population has increased until now it is 463,000, according to the last census.

The city is built on marshy ground and is divided by the Tiber into two very unequal parts, that on the left bank being Rome proper, and that on the right bank being the Leonine City, or Trastevere. The walls, twelve miles in circuit and containing sixteen gates, of which four are built up, enclose a space of which little more than one-third is inhabited, the greater part to the south of the Capitol being cultivated as gardens or vineyards.

The churches, of which there are upward of three hundred, form a notable feature in art, from their architecture, their paintings, and other decorations.

So also do the palaces of the aristocracy, which are often of great magnitude, with vast courts and spacious apartments. Of even better style as residences are the villas, both within and without the walls; while the handsome fountains, of which there are at least twelve principal ones, impart a cheerful and refreshing aspect to the city.

There are three modern aqueducts, which keep Rome supplied with an abundance of water; the Acqua Vergine, the Acqua Felice (the ancient Acqua Marcia and Claudia), and the Acqua Paola (the ancient Alsietina).

Rome is, on the whole, a healthy city, except at the close of summer and beginning of autumn, when the malaria is prevalent. The Trastevere is its most uniformly healthy district, the inhabitants of which are superior in physical development to those of the other parts. The neighborhoods of the Pincian and the Quirinal, particularly the former, are most frequented by foreigners.

The trade of the city is insignificant, consisting of a few trivial manufactures of hats, silk scarfs, gloves, artificial feathers, false pearls, mosaic trinkets, etc., and such articles as artists need and visitors fancy. The only great manufacture, if it can be so called, is that of pictures, original and copies; for the painting of these, are offered not only the advantage of numerous galleries of art, but purity of sky.

The worst feature of Rome was formerly its dirty streets and houses. All this has been changed, and nowhere, not even in London or Paris, has the march of improvement been more strongly shown than in Rome within the last decade. After the acquirement of the Eternal City by the Italian government, and its establishment as the capital of united and regenerated Italy, plans were prepared for its enlargement and improvement.

These plans contemplated the construction of a magnificent system of boulevards, and the consequent demolition of thousands of old houses and the uprooting of the slums. In dealing with such a city as this it was naturally impossible to improve without also destroying, and many historic landmarks had to give way to the exigencies of modern civilization.

Rome has been built and rebuilt, destroyed and restored, so often that there is scarcely a square foot of it but is of antiquarian interest. In carrying out the latest plan of improvement a wise conservatism has been exercised, and the result is that while Rome now possesses all the modern advantages of fine streets and rural improvements, the great works of ancient art and architecture which mark her for all time have been brought out in bolder relief and freed from the debasing influence of ignoble and squalid surroundings.

Both the city and the state of Rome are represented in tradition as having been gradually formed by the fusion of separate communities. The original settlement of Romulus is said to have been limited to the Palatine Mount.

With this were united before the end of his reign the Capitoline and the Quirinal; Tullus Hostilius added the Caelian, Ancus Martius the Aventine, and finally Servius Tullius included the Esquiline and Viminal, and enclosed the whole seven hills with a stone wall.

The growth of the state closely followed that of the city. To the original Romans on the Palatine were added successively the Sabine followers of King Tatius, Albans transplanted by Tullus, Latins by Ancus, and lastly the Etruscan comrades of Caeles Vibenna.

The structure of the early Roman state, while it bears evident marks of a fusion of communities, shows no traces of a mixture of race. Nor is it easy to point to any provable Sabine element in the language, religion, or civilization of primitive Rome.

The theory of a Sabine conquest can hardly be maintained in the face of the predominantly Latin character of both people and institutions. On the other hand, the probability of a Sabine raid and a Sabine settlement, possibly on the Quirinal Hill, in very early times may be admitted.

Such is all we know of the manner in which the separate settlements on the seven hills grew into a single city and community. How long Rome took in the making, or when or by whom the work was completed, we cannot say. Nor is it possible to give more than a very meager outline of the constitution and of the history of the united state in the early days of its existence.

A history of this early Roman state is out of the question. The names, dates and achievements of the first four kings are all too unsubstantial to form the basis of a sober narrative; a few points only can be considered as fairly well established. If we except the long eventless reign ascribed to King Numa, tradition represents the first kings as incessantly at war with their immediate neighbors. The details of these wars are no doubt mythical; but the implied condition of continual struggle, and the narrow range within which the struggle is confined, may be accepted as true. The picture drawn is that of a small community with a few square miles of territory, at deadly feud with its nearest neighbors, within a radius of some twelve miles round Rome. Nor, in spite of the repeated victories with which tradition credits Romulus, Ancus and Tullus, does there seem to have been any real extension of Roman territory except toward the sea.

With the reign of the fifth king, Tarquinius Priscus, a marked change takes place. The traditional accounts of the last three kings not only wear a more historical air than those of the first four, but they describe something like a transformation of the Roman city and state.

At the commencement of the republic Rome is once more a com-

paratively small state, with hostile and independent neighbors at her very doors.

The principal points in the wonderful history of Rome ("the cradle of the civilized world") to be mentioned here are necessarily brief.

Between the years 509 to 265 B. C. was the struggle between the orders. In this period the form of Government was changed from a Monarchy to a Republic, without the least possible disturbance of existing forms. Even the title of king was retained, but only as that of a priestly officer to whom some of the religious functions of the former kings were performed.

After this came the conquest of Italy when King Pyrrhus, beaten at Beneventum, withdrew from Italy, and Rome was left mistress of the peninsula.

Rome and the Mediterranean States were established and the "Conquest of the West" accomplished in the period between 146 and 265 B. C. Then came the Empire between 27 B. C. to 284 A. D. with the constitution of the Principate.

In reality the history of the Roman Republic during the Middle Ages has not, as yet, been written, and only by the discovery of new documents can the difficulties of the task be completely overcome.

We must here omit, in serving the purposes of this volume, the wonderful history of this period and down to the year 1798.

The republic had been sent to its grave and the republicans made two attempts to bring it back into existence. It was first resuscitated in February, 1798, by the influence of the French Revolution, and the French Constitution of the year 111 was imitated. Rome had again two councils—the Tribunate and the Senate, with five consuls constituting the executive power.

But in the following year, owing to the military reverses of the French, the government of the popes was restored until 1809, when Napoleon I annexed to his empire the States of the Church. Rome was then governed by a consulta straordinaria—a special commission—with the municipal and provincial institutions of France. In 1814 the papal government was again reinstated, and the old institution, somewhat modified on the French system, was recalled

to life. Pius IX (1846-77) tried to introduce fresh reforms, and to improve and simplify the old machinery of state; but the advancing tide of the Italian Revolution of 1848 drove him from Rome; the republic was once more proclaimed, and had a brief but glorious existence. Its programme was dictated by Joseph Mazzini, who, with Saffi and Armellini, formed the triumvirate at the head of the government. United Italy was to be a republic, with Rome for her capital. The rhetorical idea of Cola di Rienzo became heroic in 1849. The constituent assembly (Feb. 9, 1849) proclaimed the fall of the temporal power of the popes, and the establishment of a republic which was to be not only of Rome but of all Italy. France, although then herself a republic, assumed the unenviable task of re-establishing the temporal power by force of arms. But the gallant defense of Rome by General Garibaldi covered the republic with glory. The enemy was repulsed, and the army of the Neapolitan king, sent to restore the pope, was also driven off.

Then, however, France dispatched a fresh and more powerful force; Rome was vigorously besieged, and at last compelled to surrender. With June, 1849, begins the new series of Pontifical laws designed to restore the government of Pius IX, whose reign down to 1870 was that of an absolute sovereign. Then the Italian Government entered Rome (September 20, 1870), proclaimed the national constitution (October 9, 1870), and the Eternal City became the capital of Italy.

Thus the scheme of national unity, the natural outcome of the history of Rome and of Italy, impossible of accomplishment under the rule of the popes, was finally achieved by the monarchy of Savoy, which, as the true representative and personification of Italian interests, has abolished the temporal power of the papacy and made the seat of government of the united country.

ROME AND THE VATICAN.

Rome is the center, or capital, for the Roman Catholic Church for all the World. The Supreme Pontiff, who traces his succession from St. Peter, is regarded by Catholics as "Vicar of Christ, head

of the Bishops, and Supreme Governor of the whole Catholic Church, of whom the whole world is the territory or diocese." He is also patriarch of the west, bishop of Rome and its district, and temporal prince over the states of the Church, known as the Pontifical States, though the exercise of the last prerogative has been in abeyance since the events of 1859 and 1870.

The Pope has a primary or supremacy not only of honor, but of power, authority, and immediate jurisdiction over the Universal Church.

When he is canonically elected, and has given his council to the election he possesses without any other conformation authority over the whole Church, even though at his election he may not have been either bishop, priest, deacon, or sub-deacon, but a simple layman.

Hence, the office of Sovereign Pontiff is a dignity not of order but of jurisdiction. His pronouncements are regarded as infallible when he defines a doctrine regarding faith and moral, to be held by the whole church. There are sixty-seven cardinals, thirty of whom belong to Italy. The United States and the rest of North America has but one cardinal. The cardinals, upon the death of the Holy Father, elect a new Pope, generally from one of their number. The Pope in recent times has always been an Italian.

The Pope, since the loss of temporal power in 1870, has been a self-inflicted prisoner within the Vatican building and its grounds. The grounds comprise only a few acres. The Pope is absolute ruler here and the government of Italy by treaty has no jurisdiction within the Vatican or its grounds.

The Vatican is filled with the choicest paintings and sculpture of all time. It is attractive not only to lovers of art, but all who are interested in beauty and symmetry.

Several nations of the world send two sets of diplomatic representatives to Rome; one accredited to the King of Italy, the other to the Pope. The countries doing that are those nations that have established the Roman Catholic Church as the "State Church." Until a very few years ago France sent an ambassador to Rome accredited to the Pope as well as another with credentials to the King of Italy.

Austria-Hungary, Spain, Portugal and one or two minor states of Europe as well as some of the South American countries still maintain diplomatic representatives at Rome, accredited to the Pope. The United States having no "established" church, of course, has no such representative at Rome except the one accredited to the King. The same is true of England, Germany, Russia, Holland, Switzerland, and now France.

Cardinal Gibbons, an intense American, has been a strong advocate of what he calls the "Americanism" of the Roman Catholic Church. The idea of the Cardinal seems to be that the Roman Catholic Church is as free in the United States, where there is no recognized "church of state," as any other institution of our country.

It has been pointed out, too, that the Roman Catholic Church, during the past quarter of a century has made more progress in the United States of America than in any other country of the World. By the friends and advocates of Cardinal Gibbons' "Americanism" or "American Idea" it is held that the Church in the United States is unhampered as in some countries where the Church is given direct support by the state and where there is a union of church and state.

Certain dignitaries of the Roman Catholic Church in Europe, who have been accustomed to the church participating in the temporal power of the states, are not quite in accord with the idea of Cardinal Gibbons and other eminent American Catholics.

With two sets of diplomatic representatives at Rome (the only city in the World where this state of affairs exists), it will be seen that great social and political complications are bound to arise. There are two distinct social and political classes in Rome and to a lesser degree throughout Italy and elsewhere, as well as two sets of titled people.

There is one set of noblemen who receive their titles from the state and another set who receive theirs from the Vatican. The aristocracy of the state are called "the whites"; that of the Vatican "the blacks." Socially there is almost an impassable gulf separating the two sets.

When the King or other high official from any country visits

Rome he must be accredited to either the King of Italy or the Pope; he cannot be accredited to both. He must decide before he visits Rome which one it shall be. If he is from a country where the Catholic Church is the "established" one, then, naturally, he must carry credentials to the Pope, ignoring the King, in a social sense at least. This state of affairs causes complications to be continually arising in the political and social world at Rome.

At least this was the state of affairs up to the time of the earthquake. Now a reapproachment between the Vatican and the Quirinal (the King's palace) has actually taken place, in spirit at least. The note of brotherhood was sounded by the earthquake's staggering blow. It is believed that time will bring about a complete reconciliation between the state and the church.

There is an unmistakable feeling in Rome, and among all thinking people everywhere, that the liberal element in both church and state will now wipe out all differences that have separated them in the past. Those high in the councils of the Roman Catholic Church in the United States would certainly welcome just such a state of affairs existing between the Italian government and the church as that existing in the United States.

It is recognized that the Pope took the first step toward healing the breach between the Vatican and the Quirinal, when he went out of the Vatican and passed through the Basilica of St. Peter and over the arch connecting the Basilica with the hospital. During all his long career Pope Leo XIII never did so much, and it is the first time that Pope Pius has set foot out of the Vatican since his installation as Pope.

By so doing Pope Pius actually quitted the Vatican grounds, though he did not really enter Italian territory.

The Pope widened the scope of his appeal for aid so as to include not only Catholic Prelates, but also his personal acquaintances throughout the world. He said: "This calamity excites us all into a common brotherhood. Suffering knows no creed, and we earnestly hope for aid from every quarter."

The Pope decreed that all of the jubilee fund be contributed to the earthquake sufferers. This fund had been raised in all parts of the world and amounts to an enormous sum.

But this was not all that the Pope did. When refugees began

arriving from Messina and Reggio the Holy Father, in response to a telephone message from the Mayor of Rome asking whether the unfortunates could be taken to the Vatican, replied in the affirmative. The wounded and starving were received at the Vatican where they received medical treatment and food and were cared for in every way most tenderly.

To realize fully what this incident signifies it must be explained that Signor Nathan, the Mayor of Rome, is not a Catholic, and that he was at one time Grandmaster of the Freemasons. Thus it will be seen that this brotherhood, prompted by the instant death of the scores of thousands, the wounding and impoverishment of as many more, extended to heal the alleged breach that has existed between Catholics and Masons.

It has certainly demonstrated that principles need not be compromised or sacrificed but that prejudices, at least, has certainly been neutralized and in a certain degree wiped out.

When the first of the wounded sent to the Vatican arrived at the railway station in Rome, they were met by Monsignore Misitaly, sent especially by the Pope. Some of them were taken to the Vatican in public conveyances, but the more grievously injured were carried on stretchers by the Red Cross. They were received at the Vatican precincts by the nursing Sisters.

The Pope could not restrain his desire to bring them consolation and sought them out. This is what caused him to pass through the Basilica of St. Peter, as related above. The Pope really went outside the territory, in doing this, which, under the law, is guaranteed and enjoys the right of extra-territoriality. The hospital belonging to the Pope stands on Italian ground.

The Pope's entrance into the hospital was the sign for an outburst of emotion, not only on the part of the patients, but even from the Pope himself and the members of his suite. Many of those who were not gravely wounded insisted on jumping out of bed to kneel and kiss the pontiff's hand. The Pope spoke consolingly to each unfortunate. He said that since the earthquake he had lived only to think of them and study the best means of helping them. All his prayers to the Almighty had implored mercy, clemency and power to undergo the terrible strain, rising up again through the comfort of religion.

CHAPTER XVII.

ANCIENT EARTHQUAKES.

Earthquake Annals Before the Discovery of America—In Japan—Central Italy —Asia — China — Palestine — Egypt — Rome — Germany—Switzerland— Persia—England—Calabria and Sicily—Indian Archipelago—Java and Sumatra.

Of the early disastrous earthquakes, one of the most notable occurred about the year B. C. 285 or 284, in the Island of Niphon, one of the Japanese group. On that occasion, in one of the provinces named Oomi, a large tract of country was ingulfed in a single night, and there was formed in its place a lake 72½ miles long by 12¼ wide. In an adjoining province, named Sourouga, there was at the same time upheaved a volcanic mountain, which still continues active, and will be noticed in the sequel. Of the formation of a lake in the place of ground ingulfed during an earthquake the Lacus Cimini, in Central Italy, is another example. It is said to occupy the position of a city which was ingulfed about the year B. C. 1450.

The famous Colossus of Rhodes was thrown down by an earthquake in the year B. C. 224. This celebrated statue was of bronze, 105 feet in height, and of similar gigantic proportions throughout. The legs were filled with large masses of stone to give it stability; and there was in the interior of the body a winding staircase, which led to the top of the head, whence a splendid view could be obtained. Its feet were strongly fastened to the two moles which formed the entrance to the harbor, and ships in full sail passed between its legs. Notwithstanding its great weight and the strength of its fastenings, it was laid prostrate by the violent undulation of the ground during the earthquake.

About three years after this event Central Italy was much agitated by the earthquakes, between fifty and sixty shocks having occurred in one year. Hills were thrown down, the courses of rivers blocked up or turned aside, and many towns were overthrown. About the same time Libya, on the northern coast of Africa, was

greatly shaken, and nearly a hundred towns and villages destroyed.

About the years B. C. 85 or 82, the lake before mentioned—which was formed in the province of Oomi, in Japan—was the scene of another convulsion, during which there was thrown up in the middle of it an island, which is now called Tsikou-bo-sima. About twenty-five years after this there was a succession of earthquakes in China, during which whole mountains are said to have fallen down and filled up the valleys. These occurrences were probably landslips on a great scale.

Among early earthquakes ought to be mentioned one which the historian Tacitus, in his Annals, under date A. U. 814 (A. D. 61), thus notices: "In the same year one of the greatest cities of Asia, Laodicea, was thrown down by an earthquake, and was rebuilt by its own workmen without any aid from us."—Ann. XIV, 27.

This passage shows the earthquake here mentioned to have been so severe as to overthrow a large portion of the city, and its citizens to have been at that time noted for their wealth and enterprise. Indeed, from an ancient inscription, it appears that Laodicea was at one time regarded as the most splendid city in Asia Minor. The wealth and consequent luxury of its citizens may account for their lukewarmness in the cause of Christianity, so sharply reproved in the Apocalypse. That they did not repent of their religious indifference, appears from their having lost the epistle addressed to them by St. Paul, and from their ultimate punishment in the total destruction of their city by the Turks. It is now only a heap of magnificent ruins, and an example, among many others, how much more, throughout the history of the world, large cities and their inhabitants have suffered from the devastations of war than from the tremors of earthquakes.

From A. D. 107 to 115, parts of China were again much convulsed. In A. D. 262 there were extensive shocks felt over Central and Southern Italy, Libya, and Asia Minor. In several places the earth opened and poured forth salt water. These shocks were attended with much noise. A similar discharge of water from fissures opened in the earth occurred during an earthquake in Hungary, in A. D. 518; several of the rents were twelve feet wide, and the water which issued from them was boiling hot.

The City of Antioch was—not for the first time—visited with this terrible scourge about the year A. D. 525; on which occasion, however, the shocks continued at intervals for a whole year, accompanied by excessive heat. Much of the city was destroyed. During the two succeeding years the citizens rebuilt a considerable portion of the ruined edifices; but they were again overthrown, in A. D. 528, by a violent shock, repeated many times in the course of an hour. About thirteen years after this there was a shock felt throughout nearly the whole of the then known world, during which a large portion of the City of Cyzicus, situated on an island in the Bosphorus, was overthrown. A succession of shocks, which lasted forty days, and were in like manner felt over a large area, including Constantinople and part of Egypt, occurred about ten or twelve years afterwards. These shocks laid in ruins the ancient city of Verytus, on the Syrian coast, where Beyrout now stands.

In A. D. 557 Antioch was again the centre of a succession of shocks, which extended to several other neighboring cities. They continued for ten days, and were accompanied not only by loud underground rumblings, but by extraordinary atmospherical phenomena—thunder, lighting, and luminous meteors. Five or six years after this there was a remarkable occurrence on the banks of the Rhone. A mountain—said to be Dent du Midi, in the Valais—began groaing and grumbling dreadfully for some days and then a large portion of it, with the houses upon it and their inhabitants, fell into the stream below. This was evidently a landslip, but probably caused by volcanic forces. The whole empire of Japan was much disturbed by earthquakes in A. D. 600; and eighty-four or eighty-five years thereafter, in the province of Tosa, in the island of Sikokf, one of the Japanese group, there was another dreadful convulsion, during which a tract of land, estimated at half a million of acres, was ingulfed in the sea. Constantinople and its neighborhood, together with the greater part of Asia Minor, was in A. D. 740 again agitated by intermittent shocks, which lasted for about eleven months, causing much damage in the cities, and destroying many of the inhabitants. The coast was in several places elevated, and the sea driven back. Two years afterwards Egypt and Arabia were similarly agitated, and several landslips of mountains oc-

KING VICTOR DIRECTING THE TRANSPORT OF THE WOUNDED.

The arrow shows this worthy son of a noble father. Humbert, the former King of Italy, won the admiration of the world by going into a cholera-stricken district and helping stamp out that dread disease. His courage and self-sacrifice illuminate the pages of modern history.

STREETS WERE FILLED WITH WRECKAGE AND DEBRIS.

curred. The turn of Palestine, Syria, and Mesopotamia came next. Between the years A. D. 746 and 775 these countries experienced several shocks, attended with much damage to buildings and considerable loss of life. There were several landslips of mountains, and a chasm opened in the earth about a thousand paces in length.

In A. D. 794 the celebrated Pharos, the lighthouse of Alexandria in Egypt, was thrown down by a violent shock; and about seven years afterwards the Basilica of St. Paul's at Rome shared a similar fate, along with many other buildings in Italy, during an earthquake which was felt not only in that country, but in France and Germany.

Unfortunate Antioch was again convulsed in A. D. 859, when upwards of 15,000 houses were reduced to ruins. This same earthquake was accompanied by a great landslip—a part of the mountain Askraeos having fallen into the sea. The years A. D. 893 and 894 were distinguished by earthquakes very destructive to human life. In the former, 180,000 persons perished in India under the ruins of their dwellings; and in the latter year 20,000 were in like manner destroyed in Georgia, in the neighborhood of Lake Erivan.

The Basilica of the Lateran in Rome was overthrown by a shock in 896, and the monastry of Monte Cassino, in the Campania, in 1005. About two years after this, 10,000 persons perished in the district of Irak, in Arabia—partly buried in the ruins of their dwellings, partly ingulfed in fissures of the earth.

In 1021 there was felt, in Germany and Switzerland, a shock attended in the latter country by curious effects. The wells were all troubled, and the water in many of them became red. Great inundations followed the earthquake, and it was accompanied by luminous meteors. Eight years thereafter half the city of Damascus was overthrown by a violent shock, and in 1035 Jerusalem suffered severely. A few years afterwards there was a very fatal shock at Tabriz, in Persia, during which 50,000 persons were buried under the ruins of their houses. In 1052 a violent shock visited Khusestan, also in Persia, during which a large mountain near the city of Ardschan was cleft in twain. Eleven years thereafter the walls of the city of Tripoli, in Syria, was in 1069 again violently convulsed, and the sea, after retiring for a considerable distance from the

shore, returned with a mighty wave which swept everything before it, with great destruction to life and property.

In 1110 the counties of Salo and Nottingham, in England, experienced a smart shock, and the river Trent was stopped in its course; about a mile in length of its bed was laid dry, and so continued from morning till three in the afternoon.

Persia was again severely visited in 1139. The town of Gausana was destroyed, and black water issued from fissures in the earth. It is computed that 100,000 lives were lost. About nineteen years subsequently there was great loss of life at Antioch, Tripoli, Damascus, Aleppo, and other towns in Syria, through the overthrow of houses, 20,000 persons having perished. In the same year, but whether at precisely the same time is uncertain, a considerable portion of the bed of the Thames was laid dry, as that of the Trent had been before.

Calabria and Sicily were severely agitated in 1169 or 1170; the city of Catania was destroyed and 15,000 people perished. This earthquake appears to have been connected with an erruption of Mount Etna, which took place about the same time. The whole of England was shaken in 1185. The shock was particularly severe at Lincoln, where the cathedral and several houses were overthrown. The following year there was a severe shock felt nearly all over Europe. It was most powerful in Calabria and Sicily, where many towns were injured or destroyed; while even in England several houses were shaken down.

In 1188 a remarkable convulsion was experienced in the islands of the Indian Archipelago. It is said that on this occasion the islands of Java and Sumatra, which had previously been united, were severed from each other, and the straits of Sunda formed between them. Sir Stamford Raffles, who found this catastrophe recorded in the Japanese annals, under the date of the Javan year 1114, hesitates about accepting the truth of the statement, by reason of the great difference between the geological formations of the two islands. He nevertheless admits that the vast scale of the volcanic convulsions which have occurred in this quarter in modern times tends strongly to corroborate the historical statement. The native annals record other occurrences of the same kind, that took place

subsequently. They state that Sumatra, Java, Bali, and Sumbawa were all at one time connected together; that the detachment of Bali from Java took place about ninety years after the separation between Java and Sumatra, and that seventy-six years later Sumbawa became a distinct island.

The Chinese Empire began to be much disturbed about 1333, and the convulsions continued for nearly ten years. The capital, Kiang-si, was swallowed up in a great chasm, and the loss of life was immense. Several mountains were either ingulfed in underground cavities, or fell down upon the plains and valleys, blocking up the courses of rivers, and causing great inundations, which proved most destructive to life and property.

In Tuscany, during an earthquake in 1335, a large mass was separated from Monte Falterona, near Florence, and fell down, putting the earth in motion to a distance of four miles. A few years after this event Iceland and Norway were violently shaken, and in the latter country much damage was done. A river was ingulfed, and several days afterwards it reappeared above ground bringing up with it such quantities of loose materials as to choke up the valley through which its course lay, so producing an inundation. Central Europe was much agitated in 1348, great fissures opening in many places, and discharging pestilential vapors. Two years afterwards a mountain in Switzerland was cleft in twain.

The coast of Syria was in 1402 visited by another disastrous shock, accompanied by a great sea-wave, similar to that which occurred in 1069. It did immense damage. There were also several great landslips among the mountains. In 1456 the kingdom of Naples experienced several violent and destructive shocks, during which 60,000 persons perished. The Greek Archipelago was greatly agitated in 1491, and in the island of Cos 5,000 lives were lost.

CONVULSIONS OF NATURE IN TURKEY, PERSIA AND INDIA.

The earthquakes in Europe and Africa are not as frequent or violent as those in certain regions of Asia. The mountains of Persia, and those of the Caucasus, the basin of the Caspian Sea, Asia

Minor and Syria, are often devastated by terrible shocks. The whole of this zone of disturbance appears to be connected with the great volcanic focus of the Thian Shan chain, or Celestial Mountains, in Central Asia, a focus which is constantly displaying its force by furious eruptions.

This zone of underground activity extends from east to west, not only to within a short distance of the Caspian Sea, to Baku, and from there to Asia Minor, but, so far as one can judge, towards Lisbon and the Azores, through the volcanic basin of the Mediterranean. In this vast region earthquakes are most frequent and most violent in Asia Minor and Syria.

In the year 33, upon the day of the Crucifixion, occurred the earthquake which rent the veil of the temple in twain, and completely destroyed the town of Nicea, in Bithynia. The shock was felt throughout all Asia Minor, and it extended upon the other side of the Mediterranean to Greece, Sicily and the Italian mainland. There is a large rock which overhangs the shore at Gaeta, and, according to tradition, the enormous fissure which runs through this rock from top to bottom was caused by the shock which occurred in Palestine, and until within a very recent period it was the custom for vessels to salute the rock as they passed it, in commemoration of the solemn event.

Other earthquakes of ancient times in these regions have been mentioned in a previous chapter, and a brief account of some of the more notable catastrophes of more modern times follows:

The high land in the neighborhood of Cabul, in Afghanistan, was violently convulsed in 1505. The earth undulated like a sea—portions being raised from twelve to fourteen feet above their former level, and then depressed as far below it. There were also opened great fissures, whence water issued and flooded the land. Four or five years afterwards, Constantinople and the towns in its neighborhood experienced a succession of shocks during three weeks. In Constantinople 1,700 houses were overthrown, and the sea rose so high as to wash over its walls.

On the 2d of April, 1762, the coast of Chittagong, in the northeast of the Bay of Bengal, was violently shaken. There were formed in many places large openings in the ground, whence water and mud, smelling strongly of sulphur, were ejected. A large river was dried up at a place called Bardaran, while at Bar Charra, near the sea, a tract of land sank down and was submerged, drowning 200 people and their cattle. Sixty square miles of the coast permanently subsided. One mountain sank down till only its summit remained visible, while another disappeared altogether. Several other hills were rent asunder, and chasms from thirty to sixty feet wide were formed. The towns upon the tract which subsided were overflowed, and one was submerged upwards of ten feet. This great subsidence was accompanied by a corresponding elevation of ground in the islands of Ramree and Cheduba, lying to the southward.

In the month of June, 1819, the districts of Cutch and Gujerat, in the western parts of the Indian peninsula, were much agitated by successive shocks. The undulations of the ground were quite visible, and it was with difficulty that people could keep their feet. The earthquake was accompanied by a violent tempest and a loud rushing noise. Bhooj, the capital of Cutch, was overthrown, and 2,000 of the inhabitants were crushed in the ruins. Several other smaller towns and villages shared a similar fate. At Anjar, to the eastward of Bhooj, the fort with its tower fell to the ground in a mass of ruins; and even at Ahmedabad, much further to the east, on the other side of the Gulf of Cutch, the great mosque, built by Sultan Ahmed nearly 450 years before, was overthrown.

From the hills in the neighborhood of Bhooj, several large masses of rock and earth were detached and hurled into the valleys; but the appearance of the landscape around was otherwise little altered. The eastern channel of the Indus, however, which flows through the Runn of Cutch, sank to a depth of seventeen feet near the fort of Luckput, lying to the northwest of Bhooj, and from three to eight feet in the other parts of the channel. The fort and village

of Sindree, north of Luckput, were at the same time overflowed, having sunk down so much that only the tops of the houses and walls remained visible above water after the shock, which, however, had not thrown over any of the buildings.

A tract of land, 2,000 square miles in area, was at the same time so much depressed, that the sea from the Gulf of Cutch rushed in and converted it into a lagoon. This inundation overwhelmed the village and a great part of the fort of Sindree. There remained above the water little more than the upper part of the northwest town, which, having sustained no injury, afforded temporary shelter to the inhabitants, who escaped in boats the following day.

Simultaneously with this great depression, a remarkable elevation was produced at no great distance. Between five and six miles to the northward, there was raised a long mound or bank, which the inhabitants named Ullah-Bund, or God's Bank. The extent of country thus elevated is nearly fifty miles in length from east to west, and its breadth in some parts is about sixteen miles. The height is nearly uniform, and its greatest amount is about ten feet.

This occurrence is the more remarkable from its having happened so far from any known focus of volcanic action. The nearest site of subterranean disturbance is at a distance of upwards of 200 miles from Bhooj, in the southeastern corner of Beloochistan, where are numerous mud volcanoes. The phenomena which resulted from this earthquake are highly instructive. They illustrate the manner in which similar interchanges of land and sea may have been produced in other parts of the world, but of which no record has been preserved. There are manifold traces of successive similar elevations and depressions on the shores of the Bay of Baiæ near Naples; while the raised beaches of England testify to like occurrences that must have happened long before the periods at which the annals of the people began, if not before the existence of the human race itself.

The city of Shiraz, in Persia, suffered severely in June, 1824, a considerable portion of it having been engulfed in a chasm. A

large part of the town of Kazroun was destroyed, and some mountains in its neighborhood were thrown down. At Kisliar, in Circassia, there was a severe shock in March, 1830, attended by a violent gust of wind. A mountain in the neighborhood was cleft in twain, and one of the halves sank down considerably. Many houses were overthrown in the town and neighboring villages, and several hundred lives were lost.

The peninsula of Hindustan was violently shaken in August, 1833. Three severe shocks were felt at Calcutta, and four at Lucknow. The center of disturbance seems to have been at Katmandu, where the shocks were accompanied by very loud subterranean explosions. Many houses were overthrown there and at other places; while at Chupra a chasm of considerable length and depth was opened in the earth. The succession of shocks continued with more or less violence for twenty-four hours.

During the month of August, 1835, the central parts of Asia Minor were severely shaken, particularly in and around Kaisarieh. A succession of shocks continued for six hours, the earth undulating like a tempestuous sea, with much underground noise resembling thunder. Mount Ardscheh, in the neighborhood, emitted dense smoke and flames with loud noise, but without any eruption of lava. Many houses were overthrown in Kaisarieh and the neighboring villages, for a circuit of more than thirty miles. One village was engulfed, and a lake was formed in its place. The loss of life was considerable.

On January 1, 1837, the central parts of Syria, between Beirut and Damascus, were violently shaken. Many houses were overthrown and nearly 4,000 of the inhabitants perished. Great rents were formed in the ground, and even in the solid rocks, while several new hot springs appeared. The water in the Lake of Tiberius was much agitated during this earthquake, and the shocks were repeated with diminishing severity for about a fortnight. The extent of the country affected was about 500 miles in length by about ninety in breadth.

During the summer and autumn of 1840, Mount Ararat and its neighborhood were greatly convulsed. The undulations of the ground were quite perceptible, and large fissures were seen to open and close again in sympathy with the wavy motion of the earth. There were also several vertical explosions accompanied by jets of water mixed with sand and gravel. Great landslips took place from the mountain and did immense damage—3,000 houses being overthrown, with much loss of life.

The East Indian peninsula was considerably disturbed by earthquakes during the entire year of 1845. There were repeated shocks felt at Calcutta, and one, on the 7th of September, was severe. During the month of July there were several smart shocks in Assam. Smyrna and its neighborhood were severely shaken in September, and hundreds of houses were overthrown.

A terrible earthquake shook the opposite coasts of the sea of Marmora in February, 1855. Several minarets were thrown down in Constantinople, and a number of chimney-stalks, among others, those of the British embassy. But it was in Brusa, on the southern coast, that this earthquake proved so calamitous. Here the shocks were repeated at intervals for five days. Nearly the whole town was overthrown by the shock of February 28, and many of the inhabitants were killed. A storm of thunder, lightning, and rain preceded this shock, and the air was pervaded by a strong smell of sulphur. Large masses of rock were detached from Mount Olympus, and many houses were crushed by their fall.

The town of Khabooshan, in northwestern Khorassan, experienced a severe shock on December 23, 1871, by which half the town was destroyed, and 2,000 of its inhabitants buried in the ruins. Early in January of the following year, another convulsion destroyed the remainder of the town and killed about 4,000 people. Four forts in the vicinity were so completely swallowed up that not a trace of them could be discovered. The earthquakes worked like havoc in the neighboring towns and villages, and the entire loss of life caused by the two catastrophes is placed at 30,000.

On April 3, 1872, there commenced in Syria a succession of violent earthquakes, which were felt in Antioch, Aleppo, and as far as Orfa. The shocks continued for more than a week, and were particularly severe on the 10th of the month. A large portion of the city of Antioch was destroyed, causing much loss of human life, and great distress among the surviving inhabitants. Loud subterranean rumblings preceded the first shock, which lasted about four seconds —several less severe tremors following at intervals. Great fissures were formed in the ground near Antioch, and on the neighboring hillsides, whence many boulders were hurled. More than a third of the city was destroyed by the first shock. The Greek church fell, burying in its ruins 300 worshipers; and the Greek school, with fifty children, shared a like fate. The shock on the 10th completed the ruin commenced on the 3d—scarcely a house in the city being left standing. Fortunately, by that time, the inhabitants had camped out in the fields, so that there was no such fatality as during the first shock, when a great many perished—1,600 being recovered from the ruins.

A terrible series of earthquakes occurred in the interior of Asia Minor between the 3d and 5th of May, 1875. The sources of the river Meander, in the canton of Ishikli, were supposed to have been the center of the seismic disturbance. In the town of Ishikli the havoc was fearful, about 1,000 houses being destroyed and many thousand people killed. In the village of Yivril not one of 300 houses was left standing, and 450 dead bodies were taken from the ruins.

The confusion which prevailed in the neighborhood of Constantinople during April, 1878, owing to the Russo-Turkish war, was still further increased by the occurrence of an earthquake shock at San Stefano which did great damage to property and caused the death of forty people. The British fleet was then anchored close to the Turkish capital and the waters in the vicinity of the Golden Horn were sufficiently agitated by the shock to lead to a request being sent to Admiral Hornby by the commander of one of his gunboats, that he might get notice on the nex occasion of torpedo practice!

An earthquake which caused the death of several thousand persons occurred in the island of Chio, on Sunday, April 10, 1881. The town of Castro suffered the most severely, and of its 3,000 houses not 100 were left in a habitable condition. A great many villages were destroyed, and nearly all the inhabitants were made homeless and destitute. But charity, which in these days is very cosmopolitan in its action, soon came to their relief; and although the shock had also been very severe upon the opposite coast of Asia Minor, it was from there that the first boatloads of provisions, tents, and timber were dispatched.

More than 5,000 persons perished in this catastrophe, and after the search for the victims among the debris had been completed at the end of a week, it was found that about 10,000 more had been more or less injured. As it was impossible to clear away all the ruins, the authorities were compelled to be content with pulling down the walls which were still standing; and, to prevent an epidemic, they spread disinfectants over the layer of stone and lime beneath which more than a thousand corpses were still lying.

All the coast of Asia Minor was severely agitated, and there were 100 people killed in the town of Tchesme. The shocks continued for several days, each one being accompanied by a terrific underground noise.

Two years later, on October 15, 1883, the island of Chio was again visited by earthquake shocks, which, though less severe, caused great alarm, and at the same time the coast of Asia Minor was much disturbed, the town of Smyrna was a good deal injured, and the houses of Tchesme, which had hardly been rebuilt after the earthquake of 1881, were again much damaged, while the town of Latejata was completely destroyed.

A series of earthquake shocks which wrought terrible havoc in Cashmere began on the morning of May 30, 1885, and from that time till the middle of July no day passed without repeated shocks. The first, however, was the sharpest and did the most injury; although the others, from the accompanying sounds like thunder, and

the uncertainty of the danger, were sufficiently alarming. During the prevalence of these convulsions, the people for the most part camped out, and thus it happened that the later shocks, although doing immense damage to property, did not kill many people. The total loss of human life was estimated at 3,200, while 30,000 cattle perished, the great mortality among the latter being due to the fact that at night the animals were housed under the lower stories of the buildings or in roughly built sheds in the fields. The towns of Sopoor and Baramoola were completely wrecked, and the inhabitants lived under any shelter they could put up—mats, boards, old clothes, or boughs of trees.

On June 12, 1897, the whole of northeastern Bengal felt severe earthquake shocks. In Assam every European residence was leveled to the ground, and every public building, bridge, and work of masonry was destroyed. The loss fell mostly on planters and manufacturers. Tea cultivation in India and Ceylon is a commercial enterprise in which £35,000,000 of English capital is invested. Large factories in Assam and northeastern Bengal were totally destroyed with their machinery, and the villages erected by the tea companies laid in ruins.

On March 13, 1902, a series of very severe shocks occurred at Kiangri, in Asia Minor, commencing at about noon, and continuing at frequent intervals during the rest of the day. The town was entirely destroyed, scarcely a building escaping more or less injury. In all, about 3,000 houses were completely demolished. The loss of life was comparatively light, as the most of the inhabitants took warning from the first shock, which was light, and escaped to the surrounding hills before the heavy convulsions came.

Villages south and east of Tiflis, in the Caucasus, likewise suffered destruction and the loss of hundreds of lives at this time.

EARTHQUAKES IN 1909.

In January, 1909, and shortly after the great disaster in Calabria and Sicily, a severe earthquake visited Turkey, being felt

mostly in the region around Smyrna. Although the death toll was small, hundreds of houses were wrecked and the property loss was very heavy.

From reports received, the earth began its convulsions in the daytime, the first shocks being light ones. Later they grew more severe and caused buildings and dwellings to collapse. The first shocks gave the inhabitants warning and they were thus able to get out of the houses in safety.

The shocks continued at intervals for several days and caused great panics among the people, who, remembering the awful catastrophe in Italy, feared that there would be a repetition in their country.

UNITED STATES FLEET AT HAND.

It so happened that several of the United States battleship fleet, who were cruising around the world, as mentioned in another chapter, were in the harbor nearest to the district affected, and although the American admiral offered help from his ships the Turkish authorities said they would be able to take care of it without outside assistance. They thanked the Americans warmly for their kind offer.

OTHER COUNTRIES FEEL SHOCKS.

It would seem that the great Italian Earthquake had caused internal convulsions that were not to subside at once. In fact one eminent scientist predicted that there would be earthquakes and volcanic eruptions for three years.

This would seem to be true, at least for a time, as immediately following the disturbance in Sicily and Turkey shocks were felt in the Ural Mountains in Asia, South America, Mexico and Alaska.

In Luzon in the Philippine Islands a large volcano, which has remained quiet for many years, broke out or erupted with terrible violence. This was accompanied by a monster cloud-burst making a terrible storm. The native Filipino's being accustomed to cloud-bursts and Simoons (great wind and rain storms) were not so badly

alarmed as they would have been if they had been less experienced.

The beginning of the Twentieth Century marks an epoch in cataclysms from natural sources, little dreamed of a few months before and the death toll at this time is many thousands more than would be taken in a war between two great nations.

MORE DEAD IN ITALY THAN IN RUSSIA-JAPAN WAR.

A careful comparison of the number of people killed in the earthquake shocks in Italy, which lasted only 23 seconds, and those killed in the war between Russia and Japan, which lasted over a year and a half, shows that there were many more thousands lost their lives in the former disaster. Not since the days of the Flood, when Noah, commanded by God, built an Ark and saved his family and all the animals, etc., has such a dire calamity been visited upon the earth.

CHAPTER XVIII.

THE DOOMED CITY.

Earthquake Begins the Wreck of San Francisco and a Conflagration without Parallel Completes the Awful Work of Destruction—Tremendous Loss of Life in Quake and Fire—Property Loss $200,000,000.

AFTER four days and three nights that have no parallel outside of Dante's Inferno, the city of San Francisco, the American metropolis by the Golden Gate, was a mass of glowing embers fast resolving into heaps and winrows of grey ashes emblematic of devastation and death.

Where on the morning of April 18, 1906, stood a city of magnificent splendor, wealthier and more prosperous than Tyre and Sidon of antiquity, enriched by the mines of Ophir, there lay but a scene of desolation. The proud and beautiful city had been shorn of its manifold glories, its palaces and vast commercial emporiums levelled to the earth and its wide area of homes, where dwelt a happy and a prosperous people, lay prostrate in thin ashes. Here and there in the charred ruins and the streets lately blackened by waves of flame, lay crushed or charred corpses, unheeded by the survivors, some of whom were fighting desperately for their lives and property, while others were panic stricken and paralyzed by fear. Thousands of lives had been sacrificed and millions upon millions of dollars in property utterly destroyed.

The beginning of the unparalleled catastrophe was on the morning of April 18, 1906. In the grey dawn, when but few had arisen for the day, a shock of earthquake rocked the foundations of the city and precipitated scenes of panic and terror throughout the business and residence districts.

It was 5:15 o'clock in the morning when the terrific earthquake shook San Francisco and the surrounding country. One shock apparently lasted two minutes and there was an almost immediate collapse of flimsy structures all over the former city. The water supply was cut off and when fires broke out in various sections there was nothing to do but to let the buildings burn. Telegraphic and telephone communication was shut off. Electric light and gas plants were rendered useless and the city was left without water, light or power. Street car tracks were twisted out of shape and even the ferry-boats ceased to run.

The dreadful earthquake shock came without warning, its motion apparently being from east to west. At first the upheaval of the earth was gradual, but in a few seconds it increased in intensity. Chimneys began to fall and buildings to crack, tottering on their foundations.

People became panic stricken and rushed into the streets, most of them in their night attire. They were met by showers of falling buildings, bricks, cornices and walls. Many were instantly crushed to death, while others were dreadfully mangled. Those who remained indoors generally escaped with their lives, though scores were hit by detached plaster, pictures and articles thrown to the floor by the shock.

Scarcely had the earth ceased to shake when fires broke out simultaneously in many places. The fire department promptly responded to the first calls for aid, but it was found that the water mains had been rendered useless by the underground movement. Fanned by a light breeze, the flames quickly spread and soon many blocks were seen to be doomed.

Then dynamite was resorted to and the sound of frequent explosions added to the terror of the people. All efforts to stay the progress of the fire, however, proved futile. The south side of Market street from Ninth street to the bay was soon ablaze, the fire covering a belt two blocks wide. On this, the main thoroughfare of the city, are located many of the finest edifices in the city,

including the Grant, Parrott, Flood, Call, Examiner and Monadnock buildings, the Palace and Grand hotels and numerous wholesale houses.

At the same time the commercial establishments and banks north of Market street were burning. The burning district in this section extended from Sansome street to the water front and from Market street to Broadway. Fires also broke out in the mission and the entire city seemed to be in flames.

The fire swept down the streets so rapidly that it was practically impossible to save anything in its way. It reached the Grand Opera House on Mission street and in a moment had burned through the roof. The Metropolitan opera company from New York had just opened its season there and all the expensive scenery and costumes were soon reduced to ashes. From the opera house the fire leaped from building to building, leveling them almost to the ground in quick succession.

The Call editorial and mechanical departments were totally destroyed in a few minutes and the flames leaped across Stevenson street toward the fine fifteen-story stone and iron Claus Spreckels building, which with its lofty dome is the most notable edifice in San Francisco. Two small wooden buildings furnished fuel to ignite the splendid pile.

Thousands of people watched the hungry tongues of flame licking the stone walls. At first no impression was made, but suddenly there was a cracking of glass and an entrance was affected. The interior furnishings of the fourth floor were the first to go. Then as though by magic, smoke issued from the top of the dome.

This was followed by a most spectacular illumination. The round windows of the dome shone like so many full moons; they burst and gave vent to long, waving streamers of flame. The crowd watched the spectacle with bated breath. One woman wrung her hands and burst into a torrent of tears.

"It is so terrible!" she sobbed. The tall and slender structure

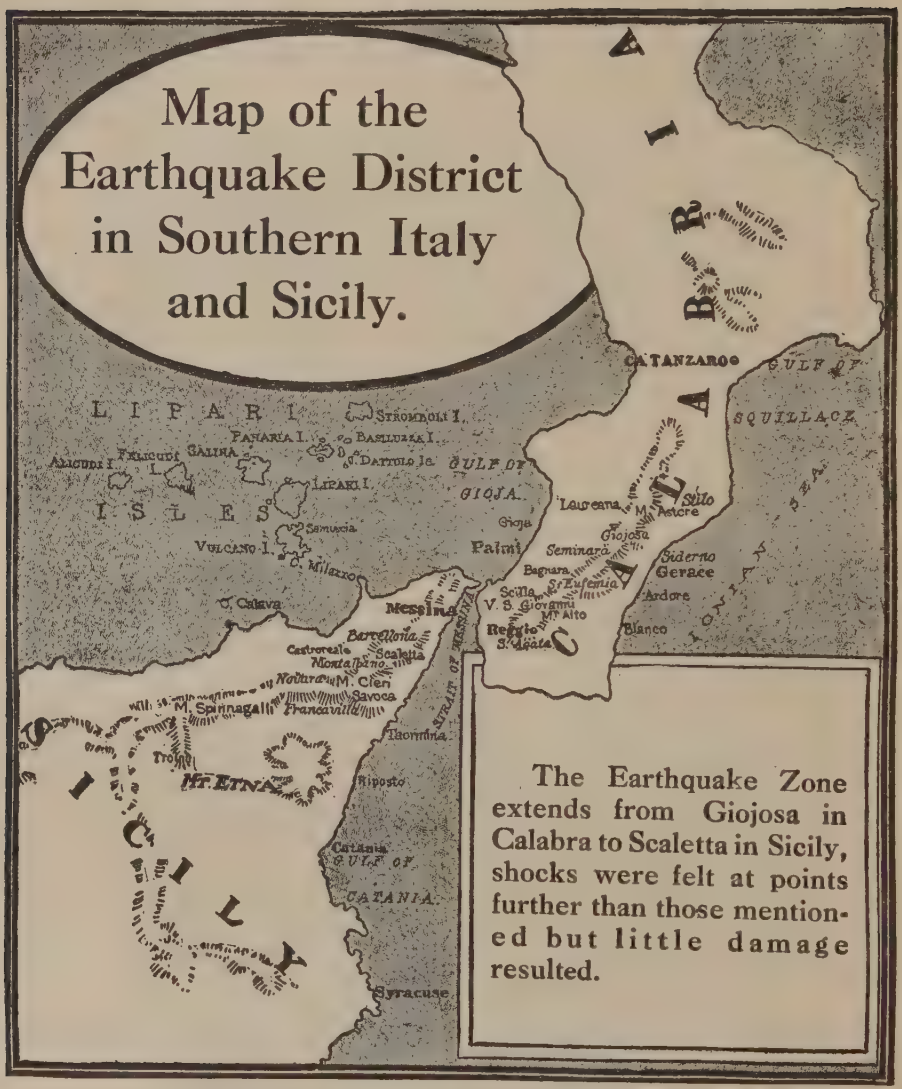
PETRIFIED HUMAN BODIES FOUND WHILE EXCAVATING THE RUINS OF POMPEII.

GHOULISH THIEVES LOOTING THE DEAD.

This harrowing scene shows the way the dead and injured are frequently robbed after a disaster.

AMERICA'S PRIDE.

The American people are justly proud of their navy and its wonderful voyage around the world.


Map of the Earthquake District in Southern Italy and Sicily.
CATANZARO
GULF OF SQUILLACE
LIPARI ISLES
STROMBOLI I.
PANARIA I.
BASILUZZA I.
ALICUDI I.
FILICUDI
GALINA
S. DATTOLO Is.
LIPARI I.
GULF OF GIOJA
Gioja
Palmi
Samucia
VULCANO I.
C. Milazzo
Laureana
M. Astore
Sitlo
Giojosa
Seminara
Bagnara
Giderno
Gerace
Ardore
Scilla
S. Eufemia
V. S. Giovanni
M. Alto
Reggio
S. Agata
Blanco
C. Caleva
Messina
Barcellona
Castroreale
Scaletta
Montalbano
Naturaro
M. Ciem
Savoca
Francaville
M. Spinagalli
STRAIT OF MESSINA
Taormina
Mt. ETNA
Riposto
Catania
GULF OF CATANIA
Syracuse
SICILY
The Earthquake Zone extends from Giojosa in Calabra to Scaletta in Sicily, shocks were felt at points further than those mentioned but little damage resulted.

which had withstood the forces of the earth appeared doomed to fall a prey to fire. After a while, however, the light grew less intense and the flames, finding nothing more to consume, gradually went, leaving the building standing but completely burned out.

The Palace Hotel, the rear of which was constantly threatened, was the scene of much excitement, the guests leaving in haste, many only with the clothing they wore. Finding that the hotel, being surrounded on all sides by streets, was likely to remain immune, many returned and made arrangements for the removal of their belongings, though little could be taken away owing to the utter absence of transportation facilities. The fire broke out anew and the building was soon a mass of ruins.

The Parrott building, in which were located the chambers of the state supreme court, the lower floors being devoted to an immense department store, was ruined, though its massive walls were not all destroyed.

A little farther down Market street the Academy of Sciences and the Jennie Flood building and the History building kindled and burned like tinder. Sparks carried across the wide street ignited the Phelan building and the army headquarters of the department of California, General Funston commanding, were burned.

Still nearing the bay, the waters of which did the firemen good service, along the docks, the fire took the Rialto building, a handsome skyscraper, and converted scores of solid business blocks into smoldering piles of brick.

Banks and commercial houses, supposed to be fireproof though not of modern build, burned quickly and the roar of the flames could be heard even on the hills, which were out of the danger zone. Here many thousands of people congregated and witnessed the awful scene. Great sheets of flame rose high in the heavens or rushed down some narrow street, joining midway between the

sidewalks and making a horizontal chimney of the former passage ways.

The dense smoke that arose from the entire business spread out like an immense funnel and could have been seen for miles out at sea. Occasionally, as some drug house or place stored with chemicals was reached, most fantastic effects were produced by the colored flames and smoke which rolled out against the darker background.

When the first shock occurred at 5:15 a. m. most of the population were in bed and many lodging houses collapsed with every occupant. There was no warning of the awful catastrophe. First came a slight shock, followed almost immediately by a second and then the great shock that sent buildings swaying and tumbling. Fire broke out immediately. Every able-bodied man who could be pressed into service was put to work rescuing the victims.

Panic seized most of the people and they rushed frantically about. Toward the ferry building there was a rush of those fleeing to cross the bay. Few carried any effects and some were hardly dressed. The streets were filled immediately with panic-stricken people and the frequently occurring shocks sent them into unreasoning panic. Fires lighted up the sky in every direction in the breaking dawn. In the business district devastation met the eye on every hand.

The area bounded by Washington, Mission and Montgomery streets and extending to the bay front was quickly devastated. That represented the heart of the handsome business section.

The greatest destruction on the first day occurred in that part of the city which was reclaimed from San Francisco Bay. Much of the devastated district was at one time low marshy ground entirely covered by water at high tide. As the city grew it became necessary to fill in many acres of this low ground in order to reach deep water. The Merchants' Exchange building, a four-

teen-story steel structure, was situated on the edge of this reclaimed ground. It had just been completed and the executive offices of the Southern Pacific Company occupied the greater part of the building.

The damage by the earthquake to the residence portion of the city, the finest part of which was on Nob Hill and Pacific Heights, was slight but the fire completely destroyed that section on the following day.

To the westward, on Pacific Heights, were many fine, new residences, but little injury was done to any of them by the quake.

The Palace Hotel, a seven-story building about 300 feet square, was built thirty years ago by the late Senator Sharon, whose estate was in the courts for many years. At the time it was erected the Palace was considered the best equipped hotel in the west.

The offices of the three morning papers, the Chronicle, the Call and the Examiner, were located within 100 feet of each other. The Chronicle, situated at the corner of Market and Kearney streets, was a ten-story steel frame building and was one of the finest buildings of its character put up in San Francisco.

The Spreckels building, in which were located the business office of the Call, was sixteen stories high and very narrow. The editorial rooms, composing room and pressroom were in a small three-story building immediately in the rear of the Spreckels building.

Just across Third street was the home of the Examiner, seven stories high, with a frontage of 100 feet on Market street.

The postoffice was a fine, grey stone structure and had been completed less than two years. It covered half a block on Mission street between Sixth and Seventh streets. The ground on which the building stood was of a swampy character and some difficulty was experienced in obtaining a solid foundation.

The City Hall, which was badly wrecked by the quake and afterwards swept by the fire, was a mile and a half from the water front. It was an imposing structure with a dome 150 feet high. The building covered about three acres and cost more than $7,000,000.

The Grand Opera House, where the Metropolitan Opera Company opened a two weeks' engagement the previous Monday night, was one of the oldest theaters in San Francisco. It was located on Mission street between Third and Fourth streets and for a number of years was the leading playhouse of the city.

In 1885 when business began to move off of Mission street and to seek modern structures this playhouse was closed for some time and later devoted to vaudeville. Within the past four years, however, numerous fine buildings had been erected on Mission street and the Grand Opera house had been used by many of the leading independent theatrical companies.

All efforts to prevent the fire from reaching the Palace and Grand hotels were unsuccessful and both were completely destroyed together with all their contents.

All of San Francisco's best playhouses, including the Majestic, Columbia, Orpheum and Grand Opera house were soon a mass of ruins. The earthquake demolished them for all practical purposes and the fire completed the work of demolition. The handsome Rialto and Caverly buildings were burned to the ground, as was everything in that district.

The scene at the Mechanics' Pavilion during the early hours of the morning and up until noon, when all the injured and dead were removed because of the threatened destruction of the building by fire, was one of indescribable sadness. Sisters, brothers, wives and sweethearts searched eagerly for some missing dear one.

Thousands of persons hurriedly went through the building inspecting the cots on which the sufferers lay in the hope that they would locate some loved one that was missing.

The dead were placed in one portion of the building and the remainder was devoted to hospital purposes. The fire forced the nurses and physicians to desert the building; the eager crowds followed them to the Presidio and the Children's hospital, where they renewed their search for missing relatives.

The experience of the first day of the fire was a great testimonial to the modern steel building. A score of those structures were in course of erection and not one of them suffered. The completed modern buildings were also immune from harm by earthquake. The buildings that collapsed were all flimsy, wooden and old-fashioned brick structures.

On the evening of Wednesday, April 18, the first day of the fire, an area of thickly covered ground of eight square miles had been burned over and it was apparent that the entire city was doomed to destruction.

Nearly every famous landmark that had made San Francisco famous over the world had been laid in ruins or burned to the ground in the dire catastrophe. Never was the fate of a city more disastrous.

For three miles along the water front buildings had been swept clean and the blackened beams and great skeletons of factories and offices stood silhouetted against a background of flame that was slowly spreading over the entire city.

The whole commercial and office section of the city on the north side of Market street from the ferry building to Tenth street had been consumed in the hell of flame, while hardly a building was standing in the district south of Market street. At 2 o'clock in the afternoon, despite the heroic work of the firemen and the troops of dynamiters, who razed building after building and blew up property valued at millions, the flames spread across Market street to the north side and swept up Montgomery street, practically to Washington street. Along Montgomery street were some of the richest banks and commercial houses in San Francisco.

The famous Mills building and the new Merchants Exchange were still standing, but the Mutual Life Insurance building and scores of bank and office buildings were on fire, while blocks of other houses were in the path of the flames and nothing seemed to be at hand to stay their progress.

Nearly every big factory building had been wiped out of existence and a complete enumeration of them would look like a copy of the city directory.

Many of the finest buildings in the city had been leveled to dust by the terrific charges of dynamite in hopeless effort to stay the horror of fire. In this work many heroic soldiers, policemen and firemen were maimed or killed outright.

At 10 o'clock at night the fire was unabated and thousands of people were fleeing to the hills and clamoring for places on the ferry boats at the ferry landing.

From the Cliff House came word that the great pleasure resort and show place of the city, which stood upon a foundation of solid rock, had been swept into the sea. This report proved to be unfounded, but it was not until three days later that any one got close enough to the Cliff House to discover that it was still safe.

One of the big losses of the day was the destruction of St. Ignatius' church and college at Van Ness avenue and Hayes street. This was the greatest Jesuitical institution in the west and built at a cost of $2,000,000.

By 7 o'clock at night the fire had swept from the south side of the town across Market street into the district called the Western addition and was burning houses at Golden Gate avenue and Octavia. This result was reached after almost the entire southern district from Ninth street to the eastern water front had been converted into a blackened waste. In this section were hundreds of factories, wholesale houses and many business firms, in addition to thousands of homes.

CHAPTER XIX.

SAN FRANCISCO A ROARING FURNACE.

Flames Spread in a Hundred Directions and the Fire Becomes the Greatest Conflagration of Modern Times—Entire Business Section and Fairest Part of Residence District Wiped Off the Map—Palaces of Millionaires Vanish in Flames or are Blown Up by Dynamite—The Worst Day of the Catastrophe.

MARIUS sitting among the ruins of Carthage saw not such a sight as presented itself to the afflicted people of San Francisco in the dim haze of the smoke pall at the end of the second day. Ruins stark naked, yawning at fearful angles and pinnacled into a thousand fearsome shapes, marked the site of what was three-fourths of the total area of the city.

Only the outer fringe of the city was left, and the flames which swept unimpeded in a hundred directions were swiftly obliterating what remained.

Nothing worthy of the name of building in the business district and not more than half of the residence district had escaped. Of its population of 400,000 nearly 300,000 were homeless.

Gutted throughout its entire magnificent financial quarters by the swift work of thirty hours and with a black ruin covering more than seven square miles out into her very heart, the city waited in a stupor the inevitable struggle with privation and hardship.

All the hospitals except the free city hospital had been destroyed, and the authorities were dragging the injured, sick and dying from place to place for safety.

All day the fire, sweeping in a dozen directions, irresistibly completed the desolation of the city. Nob Hill district, in which

were situated the home of Mrs. Stanford, the priceless Hopkins Art Institute, the Fairmount hotel, a marble palace that cost millions of dollars and homes of a hundred millionaires, was destroyed.

It was not without a struggle that Mayor Schmitz and his aids let this, the fairest section of the city, suffer obliteration. Before noon when the flames were marching swiftly on Nob Hill, but were still far off, dynamite was dragged up the steep debris laden streets. For a distance of a mile every residence on the east side of Van Ness avenue was swept away in a vain hope to stay the progress of the fire.

After sucking dry even the sewers the fire engines were either abandoned or moved to the outlying districts.

There was no help. Water was gone, powder was gone, hope even was a fiction. The fair city by the Golden Gate was doomed to be blotted from the sight of man.

The stricken people who wandered through the streets in pathetic helplessness and sat upon their scattered belongings in cooling ruins reached the stage of dumb, uncaring despair, the city dissolving before their eyes had no significance longer.

There was no business quarter; it was gone. There was no longer a hotel district, a theater route, a place where Night beckoned to Pleasure. Everything was gone.

But a portion of the residence domain of the city remained, and the jaws of the disaster were closing down on that with relentless determination.

All of the city south of Market street, even down to Islais creek and out as far as Valencia street, was a smouldering ruin. Into the western addition and the Pacific avenue heights three broad fingers of fire were feeling their way with a speed that foretold the destruction of all the palace sites of the city before the night would be over.

There was no longer a downtown district. A blot of black spread from East street to Octavia, bounded on the south and

north by Broadway and Washington streets and Islais creek respectively. Not a bank stood. There were no longer any exchanges, insurance offices, brokerages, real estate offices, all that once represented the financial heart of the city and its industrial strength.

Up Market street from the Ferry building to Valfira street nothing but the black fingers of jagged ruins pointed to the smoke blanket that pressed low overhead. What was once California, Sansome, and Montgomery streets was a labyrinth of grim blackened walls.

Chinatown was no more. Union square was a barren waste.

The Call building stood proudly erect, lifting its whited head above the ruin like some leprous thing and with all its windows, dead, staring eyes that looked upon nothing but a wilderness. The proud Flood building was a hollow shell.

The St. Francis Hotel, one time a place of luxury, was naught but a box of stone and steel.

Yet the flames leaped on exultantly. They leapt chasms like a waterfall taking a precipice. Now they are here, now there, always pressing on into the west and through to the end of the city.

It was supposed that the fire had eaten itself out in the wholesale district below Sansome street, and that the main body of the flames was confined to the district south of Market street, where the oil works, the furniture factories, and the vast lumber yards had given fodder into the mouth of the fire fiend.

Yet, suddenly, as if by perverse devilishness, a fierce wind from the west swept over the crest of Nob Hill and was answered by leaping tongues of flames from out of the heart of the ruins.

By 8:30 o'clock Montgomery street had been spanned and the great Merchants' Exchange building on California street flamed out like the beacon torch of a falling star. From the dark fringe of humanity, watching on the crest of the California street hill, there sprang the noise of a sudden catching of the breath—not a

sigh, not a groan—just a sharp gasp, betraying a stress of despair near to the insanity point.

Nine o'clock and the great Crocker building shot sparks and added tongues of fire to the high heavens. Immediately the fire jumped to Kearny street, licking at the fat provender that shaped itself for consuming.

Then began the mournful procession of Japanese and poor whites occupying the rookeries about Dupont street and along Pine. Tugging at heavy ropes, they rasped trunks up the steep pavements of California and Pine streets to places of temporary safety.

It was a motley crew. Women laden with bundles and dragging reluctant children by the hands panted up the steep slope with terror stamped on their faces.

Men with household furniture heaped camelwise on their shoulders trudged stoically over the rough cobbles, with the flame of the fire bronzing their faces into the outlines of a gargoyle. One patriotic son of Nippon labored painfully up Dupont street with the crayon portrait of the emperor of Japan on his back.

While this zone of fire was swiftly gnawing its way through Kearny street and up the hill, another and even more terrible segment of the conflagration was being stubbornly fought at the corner of Golden Gate avenue and Polk street. There exhausted firemen directed the feeble streams from two hoses upon a solid block of streaming flame.

The engines pumped the supply from the sewers. Notwithstanding this desperate stand, the flames progressed until they had reached Octavia street.

Like a sickle set to a field of grain the fiery crescent spread around the southerly end of the west addition up to Oak and Fell streets, along Octavia. There one puny engine puffed a single stream of water upon the burning mass, but is efforts were like the stabbing of a pigmy at a giant.

All the district bounded by Octavia, Golden Gate avenue, and Market street was a blackened ruin. One picked his way through the fallen walls on Van Ness avenue as he would cross an Arizona mesa. It was an absolute ruin, gaunt and flame lighted.

From the midst rose the great square wall of St. Ignatius college, standing like another ruined Acropolis in dead Athens.

Behind the gaunt specter of what had once been the city hall a blizzard of flame swept back into the gore between Turk and Market streets. Peeled of its heavy stone facing like a young leek that is stripped of its wrappings, the dome of the city hall rose spectral against the nebulous background of sparks.

From its summit looked down the goddess of justice, who had kept her pedestal even while the ones of masonry below her feet had been toppled to the earth in huge blocks the size of a freight car.

Through the gaunt iron ribs and the dome the red glare suffusing the whole northern sky glinted like the color of blood in a hand held to the sun.

At midnight the Hibernian bank was doomed, for from the frame buildings west of it there was being swept a veritable maelstrom of sheet flame that leaped toward it in giant strides. Not a fireman was in sight.

Across the street amid the smoke stood the new postoffice, one of the few buildings saved. Turk street was the northern boundary of this V shaped zone of the flames, but at 2 o'clock this street also was crossed and the triumphant march onward continued.

At midnight another fire, which had started in front of Fisher's Music Hall, on O'Farrell street, had gouged its terrible way through to Market street, carrying away what the morning's blaze across the street had left miraculously undestroyed.

Into Eddy and Turk streets the flames plunged, and soon the magnificent Flood building was doomed.

The firemen made an ineffectual attempt to check the ravages

of the advancing phalanx of flames, but their efforts were absolutely without avail. First from across the street shot tongues of flames which cracked the glass in one of the Flood building's upper story windows. Then a shower of sparks was sent driving at a lace curtain which fluttered out in the draft. The flimsy whipping rag caught, a tongue of flame crept up its length and into the window casement.

"My God, let me get out of this," said a man below who had watched the massive shape of the huge pile arise defiant before the flames. "I can't stand to see that go, too."

Shortly after midnight the streets about Union Square were barred by the red stripes of the fire. First Cordes Furniture Company's store went, then Brennor's. Next a tongue of flames crept stealthily into the rear of the City of Paris store, on the corner of Geary and Stockton streets.

Eager spectators watched for the first red streamers to appear from the windows of the great dry goods stores. Smoke eddied from under window sills and through cracks made by the earthquake in the cornices. Then the cloud grew denser. A puff of hot wind came from the west, and as if from the signal there streamed flamboyantly from every window in the top floor of the structure billowing banners, as a poppy colored silk that jumped skyward in curling, snapping breadths, a fearful heraldry of the pomp of destruction.

From the copper minarets on the Hebrew synagogue behind Union square tiny green, copperly flames next began to shoot forth. They grew quickly larger, and as the heat increased in intensity there shone from the two great bulbs of metal sheathing an iridescence that blinded like a sight into a blast furnace.

With a roar the minarets exploded almost simultaneously, and the sparks shot up to mingle with the dulled stars overhead. The Union League and Pacific Union clubs next shone red with the fire that was glutting them.

On three sides ringed with sheets of flame rose the Dewey

memorial in the midst of Union square. Victory tiptoeing on the apex of the column glowed red with the flames. It was as if the goddess of battle had suddenly become apostate and a fiend linked in sympathy with the devils of the blaze.

On the first day of the catastrophe the St. Francis escaped. On the second it fell. In the space of two hours the flames had blotted it out, and by night only the charred skeleton remained.

As a prelude to the destruction of the St. Francis the fire swept the homes of the Bohemian, Pacific, Union, and Family clubs, the best in San Francisco.

With them were obliterated the huge retail stores along Post street; St. Luke's Church, the biggest Episcopal church on the Pacific coast, and the priceless Hopkins Art Institute.

From Union square to Chinatown it is only a pistol shot. By noon all Chinatown was a blazing furnace, the rickety wooden hives, where the largest Chinese colony in this country lived, was perfect fuel for the fire.

Then Nob Hill, the charmed circle of the city, the residential district of its millionaires and of those whose names have made it famous, went with the rest of the city into oblivion. The Fairmount Hotel, marble palace built by Mrs. Oelrichs, crowned this district.

Grouped around it were the residences of Mrs. Stanford, and a score of millionaires' homes on Van Ness avenue. One by one they were buried in the onrushing flames, and when the fire was passed they were gone.

Here the most desperate effort of the fight to save the city was made. Nothing was spared. There was no discrimination, no sentiment. Rich men aided willingly in the destruction of their own homes that some of the city might be saved.

But the sacrifice and the labor went for nothing. No human power could stay the flames. As darkness was falling the fire was eating its way through the heart of this residential district.

The mayor was forced to announce that the last hope had been dashed.

All the district bounded by Union, Van Ness, Golden Gate, to Octavia, Hayes, and Fillmore to Market was doomed. The fire fighters, troops, citizens, and city officials left the scene, powerless to do more.

On the morning of the second day when the fire reached the municipal building on Portsmouth square, the nurses, helped by soldiers, got out fifty bodies in the temporary morgue and a number of patients in the receiving hospital. Just after they reached the street a building was blown up and the flying bricks and splinters hurt a number of the soldiers, who had to be taken to the out of doors Presidio Hospital with the patients.

Mechanics' pavilion, which, after housing prize fights, conventions, and great balls, found its last use as an emergency hospital. When it was seen that it could not last every vehicle in sight was impressed by the troops, and the wounded, some of them frightfully mangled, were taken to the Presidio, where they were out of danger and found comfort in tents.

The physicians worked without sleep and almost without food. There was food, however, for the injured; the soldiers saw to that. Even the soldiers flagged, and kept guard in relays. while the relieved men slept on the ground where they dropped.

The troops shut down with iron hands on the city, for where one man was homeless the first night five were homeless the second night. With the fire running all along the water front, few managed to make their way over to Oakland. The people for the most part were prisoners on the peninsula.

The soldiers enforced the rule against moving about except to escape the flames, and absolutely no one could enter the city who once had left.

The seat of city government and of military authority shifted with every shift of the flames. Mayor Schmitz and General Funston stuck close together and kept in touch with the fire-

men and police, the volunteer aids, and the committee of safety through couriers.

There were loud reverberations along the fire line at night. Supplies of gun cotton and cordite from the Presidio were commandeered and the troops and the few remaining firemen made another futile effort to check the fiery advance.

Along the wharves the fire tugs saved most of the docks. But the Pacific mail dock had been reached and was out of control; and finally China basin, which was filled in for a freight yard at the expense of millions of dollars, had sunk into the bay and the water was over the tracks. This was one of the greatest single losses in the whole disaster.

Without sleep and without food, crowds watched all night Wednesday and all day Thursday from the hills, looking off toward that veil of fire and smoke that hid the city which had become a hell.

Back of that sheet of fire, and retreating backward every hour, were most of the people of the city, forced toward the Pacific by the advance of the flames. The open space of the Presidio and Golden Gate park was their only haven and so the night of the second day found them.

CHAPTER XX.

THIRD DAY ADDS TO HORROR.

Fire Spreads North and South Attended by Many Spectacular Features—Heroic Work of Soldiers Under General Funston—Explosions of Gas Add to General Terror.

THE third day of the fire was attended by many spectacular features, many scenes of disaster and many acts of daring heroism.

When night came the fire was raging over fifty acres of the water front lying between Bay street and the end of Meiggs and Fisherman's wharf. To the eastward it extended down to the sea wall, but had not reached the piers, which lay a quarter of a mile toward the east.

The cannery and warehouses of the Central California Canneries Company, together with 20,000 cases of canned fruit, was totally destroyed, as also was the Simpson and other lumber companies' yards.

The flames reached the tanks of the San Francisco Gas Company, which had previously been pumped out, and had burned the ends of the grain sheds, five in number, which extended further out toward the point.

Flame and smoke hid from view the vessels that lay off shore vainly attempting to check the fire. No water was available except from the waterside and it was not until almost dark that the department was able to turn its attention to this point.

At dusk the fire had been checked at Van Ness avenue and Filbert street. The buildings on a high slope between Van Ness and Polk, Union and Filbert streets were blazing fiercely, fanned by a high wind, but the blocks were so sparsely settled

that the fire had but a slender chance of crossing Van Ness at that point.

Mayor Schmitz, who directed operations at that point, conferred with the military authorities and decided that it was not necessary to dynamite the buildings on the west side of Van Ness. As much of the fire department as could be collected was assembled to make a stand at that point.

To add to the horrors of the general situation and the general alarm of many people who ascribed the cause of the subterranean trouble to another convulsion of nature, explosions of sewer gas have ribboned and ribbed many streets. A Vesuvius in miniature was created by such an upheaval at Bryant and Eighth streets. Cobblestones were hurled twenty feet upward and dirt vomited out of the ground. This situation added to the calamity, as it was feared the sewer gas would breed disease.

Thousands were roaming the streets famishing for food and water and while supplies were coming in by the train loads the system of distribution was not in complete working order.

Many thousands had not tasted food or water for two and three days. They were on the verge of starvation.

The flames were checked north of Telegraph hill, the western boundary being along Franklin street and California street southeast to Market street. The firemen checked the advance of flames by dynamiting two large residences and then backfiring. Many times before had the firemen made such an effort, but always previously had they met defeat.

But success at that hour meant little for San Francisco.

The flames still burned fitfully about the city, but the spread of fire had been checked.

A three-story lodging house at Fifth and Minna streets collapsed and over seventy-five dead bodies were taken out. There were at least fifty other dead bodies exposed. This building

was one of the first to take fire on Fifth street. At least 100 people were lost in the Cosmopolitan on Fourth street.

The only building standing between Mission, Howard, East and Stewart streets was the San Pablo hotel. The shot tower at First and Howard streets was gone. This landmark was built forty years ago. The Risdon Iron works were partially destroyed. The Great Western Smelting and Refining works escaped damages, also the Mutual Electric Light works, with slight damage to the American Rubber Company, Vietagas Engine Company, Folger Brothers' coffee and spice house was also uninjured and the firm gave away large quantities of bread and milk.

Over 150 people were lost in the Brunswick hotel, Seventh and Mission streets.

The soldiers who rendered such heroic aid took the cue from General Funston. He had not slept. He was the real ruler of San Francisco. All the military tents available were set up in the Presidio and the troops were turned out of the barracks to bivouac on the ground.

In the shelter tents they placed first the sick, second the more delicate of the women, and third, the nursing mothers, and in the afternoon he ordered all the dead buried at once in a temporary cemetery in the Presidio grounds. The recovered bodies were carted about the city ahead of the flames.

Many lay in the city morgue until the fire reached that; then it was Portsmouth square until it grew too hot; afterwards they were taken to the Presidio. There was another stream of bodies which had lain in Mechanics' pavilion at first, and had then been laid out in Columbia square, in the heart of a district devastated first by the earthquake and then by fire.

The condition of the bodies was becomnig a great danger. Yet the troops had no men to spare to dig graves, and the young and able bodied men were mainly fighting on the fire line or utterly exhausted.

It was Funston who ordered that the old men and the weaklings should take this work in hand. They did it willingly enough, but had they refused the troops on guard would have forced them. It was ruled that every man physically capable of handling a spade or a pick should dig for an hour. When the first shallow graves were ready the men, under the direction of the troops, lowered the bodies several in a grave, and a strange burial began.

The women gathered about crying; many of them knelt while a Catholic priest read the burial service and pronounced absolution. All the afternoon this went on.

Representatives of the city authorities took the names of as many of the dead as could be identified and the descriptions of the others. Many, of course, will never be identified.

So confident were the authorities that they had the situation in control at the end of the third day that Mayor Schmitz issued the following proclamation:

"To the Citizens of San Francisco: The fire is now under control and all danger is passed. The only fear is that other fires may start should the people build fires in their stoves and I therefore warn all citizens not to build fires in their homes until the chimneys have been inspected and repaired properly. All citizens are urged to discountenance the building of fires. I congratulate the citizens of San Francisco upon the fortitude they have displayed and I urge upon them the necessity of aiding the authorities in the work of relieving the destitute and suffering. For the relief of those persons who are encamped in the various sections of the city everything possible is being done. In Golden Gate park, where there are approximately 200,000 homeless persons, relief stations have been established. The Spring Valley Water Company has informed me that the Mission district will be supplied with water this afternoon, between 10,000 and 12,000 gallons daily being available. Lake Merced will be taken by the federal troups and that supply protected.

"Eugene E. Schmitz, Mayor."

Although the third day of San Francisco's desolation dawned with hope, it ended in despair.

In the early hours of the day the flames, which had raged for thirty-six hours, seemed to be checked.

Then late in the afternoon a fierce gale of wind from the northwest set in and by 7 o'clock the conflagration, with its energy restored, was sweeping over fifty acres of the water front.

The darkness and the wind, which at times amounted to a gale, added fresh terrors to the situation. The authorities considered conditions so grave that it was decided to swear in immediately 1,000 special policemen armed with rifles furnished by the federal government.

In addition to this force, companies of the national guard arrived from many interior points.

In the forenoon, when it was believed the fire had been checked, the full extent of the destitution and suffering of the people was seen for the first time in near perspective. While the whole city was burning there was no thought of food or shelter, death, injury, privation, or loss. The dead were left unburied and the living were left to find food and a place to sleep where they could.

On the morning of the third day, however, the indescribable destitution and suffering were borne in upon the authorities with crushing force. Dawn found a line of men, women, and children, numbering thousands, awaiting morsels of food at the street bakeries. The police and military were present in force, and each person was allowed only one loaf.

A big bakery was started early in the morning in the outskirts of the city, with the announcement that it would turn out 50,000 loaves of bread before night. The news spread and thousands of hungry persons crowded before its doors before the first deliveries were hot from the oven. Here again police and soldiers kept order and permitted each person to take only one loaf. The loaves were given out without cost.

These precautions were necessary, for earlier in the day bread

had sold as high as $1 a loaf and two loaves and a can of sardines brought in one instance $3.50.

Mayor Schmitz took prompt and drastic steps to stop this extortion. By his order all grocery and provision stores in the outlying districts which had escaped the flames were entered by the police and their goods confiscated.

Next to the need for food there was a cry for water, which until Friday morning the authorities could not answer.

In spite of all efforts to relieve distress there was indescribable suffering.

Women and children who had comfortable, happy homes a few days before slept that night—if sleep came at all—on hay on the wharves, on the sand lots near North beach, some of them under the little tents made of sheeting, which poorly protected them from the chilling ocean winds. The people in the parks were better provided in the matter of shelter, for they left their homes better prepared.

Thousands of members of families were separated, ignorant of one another's whereabouts and without means of ascertaining. The police on Friday opened up a bureau of registration to bring relatives together.

The work of burying the dead was begun Friday for the first time. Out at the Presidio soldiers pressed into service all men who came near and forced them to labor at burying the dead. So thick were the corpses piled up that they were becoming a menace, and early in the day the order was issued to bury them at any cost. The soldiers were needed for other work, so, at the point of rifles, the citizens were compelled to take the work of burying. Some objected at first, but the troops stood no trifling, and every man who came in reach was forced to work at least one hour. Rich men who had never done such work labored by the side of the workingmen digging trenches in the sand for the sepulcher of those who fell in the awful calamity. At the present

writing many still remain unburied and the soldiers are still pressing men into service.

The Folsom street dock was turned into a temporary hospital, the harbor hospital being unable to accommodate all the injured who were brought there.

About 100 patients were stretched on the dock at one time. In the evening tugs conveyed them to Goat Island, where they were lodged in the hospital. The docks from Howard street to Folsom street had been saved, and the fire at this point was not permitted to creep farther east than Main street.

The work of clearing up the wrecked city has already begun at the water front in the business section of the town. A force of 100 men were employed under the direction of the street department clearing up the debris and putting the streets in proper condition.

It was impossible to secure a vehicle except at extortionate prices. One merchant engaged a teamster and horse and wagon, agreeing to pay $50 an hour. Charges of $20 for carrying trunks a few blocks were common. The police and military seized teams wherever they required them, their wishes being enforced at revolver point if the owner proved indisposed to comply with the demands.

Up and down the broad avenues of the parks the troops patrolled, keeping order. This was difficult at times, for the second hysterical stage had succeeded the paralysis of the first day and people were doing strange things. A man, running half naked, tearing at his clothes, and crying, "The end of all things has come!" was caught by the soldiers and placed under arrest.

Under a tree on the broad lawn of the children's playground a baby was born. By good luck there was a doctor there, and the women helped out, so that the mother appeared to be safe. They carried her later to the children's building in the park and did their best to make her comfortable.

All night wagons mounted with barrels and guarded by sol-

diers drove through the park doling out water. There was always a crush about these wagons and but one drink was allowed to a person.

Separate supplies were sent to the sick in the tents. The troops allowed no camp fires, fearing that the trees of the park might catch and drive the people out of this refuge to the open and windswept sands by the ocean.

The wind which had saved the heights came cold across the park, driving a damp fog, and for those who had no blankets it was a terrible night, for many of them were exhausted and must sleep, even in the cold. They threw themselves down in the wet grass and fell asleep.

When the morning came the people even prepared to make the camp permanent. An ingenious man hung up before his little blanket shelter a sign on a stick giving his name and address before the fire wiped him out. This became a fashion, and it was taken to mean that the space was preempted.

Toward midnight a black, staggering body of men began to weave through the entrance. They were volunteer fire fighters, looking for a place to throw themselves down and sleep. These men dropped out all along the line and were rolled out of the driveways by the troops.

There was much splendid unselfishness there. Women gave up their blankets and sat up or walked about all night to cover exhausted men who had fought fire until there was no more fight in them.

TWENTY SQUARE MILES OF WRECK AND RUIN.

Fierce Battle to Save the Famous Ferry Station, the Chief Inlet to and Egress from San Francisco—Fire Tugs and Vessels in the Bay Aid in Heroic Fight—Fort Mason, General Funston's Temporary Headquarters, has Narrow Escape—A Survey of the Scene of Desolation.

WHEN darkness fell over the desolate city at the end of the fourth day of terror, the heroic men who had borne the burden of the fight with the flames breathed their first sigh of relief, for what remained of the proud metropolis of the Pacific coast was safe.

This was but a semi-circular fringe, however, for San Francisco was a city desolate with twenty square miles of its best area in ashes. In that blackened territory lay the ruins of sixty thousand buildings, once worth many millions of dollars and containing many millions more.

The fourth and last day of the world's greatest conflagration had been one of dire calamity and in some respects was the most spectacular of all. On the evening of the third day (Friday) a gale swept over the city from the west, fanned the glowing embers into fierce flames and again started them upon a path of terrible destruction.

The fire which had practically burnt itself out north of Telegraph Hill was revived by the wind and bursting into a blaze crept toward the East, threatening the destruction of the entire water front, including the Union ferry depot, the only means of egress from the devastated city.

The weary firemen still at work in other quarters of the city were hastily summoned to combat the new danger. Hundreds of sailors from United States warships and hundreds of soldiers joined in the battle, and from midnight until dawn men fought fire as never fire had been fought before. Fire tugs drew up along the water front and threw immense streams of water on to the flames of burning factories, warehouses and sheds.

Blocks of buildings were blown up with powder, guncotton, and dynamite, or torn down by men armed with axes and ropes. All night long the struggle continued. Mayor Schmitz and Chief of Police Dinan, although without sleep for forty-eight hours, remained on the scene all night to assist army and navy officers in directing the fight.

At 7 o'clock Saturday morning, April 21, the battle was won. At that hour the fire was burning grain sheds on the water front about half a mile north of the Ferry station, but was confined to a comparatively small area, and with the work of the fireboats on the bay and the firemen on shore, who were using salt water pumped from the bay, prevented the flames from reaching the Ferry building and the docks in that immediate vicinity.

On the north beach the fire did not reach that part of the water front lying west of the foot of Powell street. The fire on the water front was the only one burning. The entire western addition to the city lying west of Van Ness avenue, which escaped the sweep of flame on Friday, was absolutely safe.

Forty carloads of supplies, which had been run upon the belt line tracks near one of the burned wharves, were destroyed during the night.

A survey of the water front Saturday morning showed that everything except four docks had been swept clean from Fisherman's wharf, at the foot of Powell street, to a point around westerly, almost to the Ferry building.

This means that nearly a mile of grain sheds, docks and wharves were added to the general destruction. In the section

north of Market street the ruined district was practically bounded on the west by Van Ness avenue, although in many blocks the flames destroyed squares to the west of that thoroughfare. The Van Ness avenue burned line runs northerly to Greenwich street, which is a few blocks from the bay. Then the boundary was up over Telegraph Hill and down to that portion of the shore that faces Oakland. Practically everything included between Market, Van Ness avenue, Greenwich, and the bay was in ashes.

On the east side of Hyde street hill the fire burned down to Bay street and Montgomery avenue and stopped at that intersection.

Fort Mason was saved only by the most strenuous efforts of soldiers and firemen. It stands just north of the edge of the burned district, the flames having been checked only three blocks away at Greenwich street.

All south of Market street except in the vicinity of the Pacific Mail dock, was gone. This section is bounded on the north by Market street and runs out to Guererro street, goes out that street two blocks, turns west to Dolores, runs west six blocks to about Twenty-second, taking in four blocks on the other side of Dolores. The fire then took an irregular course southward, spreading out as far as Twenty-fifth street and went down that way to the southerly bay shore.

Maj. C. A. Devol, depot quartermaster and superintendent of the transport service, graphically described the conquering of the fire on the water front, in which he played an important part:

"This fire, which ate its way down to the water front early Friday afternoon, was the climax of the whole situation.

"We realized at once that were the water front to go, San Francisco would be shut off from the world, thus paralyzing all transportation faculties for bringing in food and water to the thousands of refugees huddled on the hillsides from Fort Mason to Golden Gate Park. It would have been impossible to either

come in or go out of the city save by row boats and floats, or by the blocked passage overland southward.

"This all-important section of the city first broke into flames in a hollow near Meigg's wharf, about 2 o'clock in the afternoon. The tugs of our service were all busy transporting provisions from Oakland, but the gravity of the situation made it necessary for all of them to turn to fire-fighting.

"The flames ate down into the extensive lumber district, but had not caught the dock line. Behind the dock, adjacent to the Spreckels sugar warehouse and wharf, were hundreds of freight cars. Had these been allowed to catch fire, the flames would have swept down the entire water front to South San Francisco.

"The climax came at Pier No. 9, and it was here that all energies were focused. A large tug from Mare Island, two fire patrol boats, the Spreckels tugs and ten or twelve more, had lines of hose laid into the heart of the roaring furnace and were pumping from the bay to the limit of their capacities.

"About 5 o'clock I was told that the tugs were just about holding their own and that more help would be needed. The Slocum and the McDowell were at once ordered to the spot. I was on board the former and at one time the heat of the fire was so great that it was necessary to play minor streams on the cabin and sides of the vessel to keep it from taking fire. We were in a slip surrounded by flames.

"Our lines of hose once laid to the dockage, we found willing hands of volunteers waiting to carry the hose forward. I saw pale, hungry men, who probably had not slept for two days, hang on to the nozzle and play the stream until they fell from exhaustion. Others took their places and only with a very few exceptions was it necessary to use force to command the assistance of citizens or onlookers.

"All night the flames raged through the lumber district, and the fire reached its worst about 3:30 o'clock Saturday morning. Daylight found it under control."

All that was left of the proud Argonaut city was like a Crescent moon set about a black disk of shadow. A Saharan desolation of blackened, ash covered, twisted debris was all that remained of three-fifths of the city that four days ago stood like a sentinel in glittering, jeweled armor, guarding the Golden Gate to the Pacific.

Men who had numbered their fortunes in the tens of thousands camped on the ruins of their homes, eating as primitive men ate—gnawing; thinking as primitive men thought. Ashes and the dull pain of despair were their portions. They did not have the volition to help themselves, childlike as the men of the stone age, they awaited quiescent what the next hour might bring them.

Fear they had none, because they had known the shape of fear for forty-eight hours and to them it had no more terrors. Men overworked to the breaking point and women unnerved by hysteria dropped down on the cooling ashes and slept where they lay, for had they not seen the tall steel skyscrapers burn like a torch? Had they not beheld the cataracts of flame fleeting unhindered up the broad avenues, and over the solid blocks of the city?

Fire had become a commonplace. Fear of fire had been blunted by their terrible suffering, and although the soldiers roused the sleepers and warned them against possible approaching flames, they would only yawn, wrap their blanket about them and stolidly move on to find some other place where they might drop and again slumber like men dead.

As the work of clearing away the debris progressed it was found that an overwhelming portion of the fatalities occurred in the cheap rooming house section of the city, where the frail hotels were crowded at the time of the catastrophe.

In one of these hotels alone, the five-story Brunswick rooming house at Sixth and Howard streets, it is believed that 300 people perished. The building had 300 rooms filled with guests. It

collapsed to the ground entirely and fire started amidst the ruins scarcely five minutes later.

South of Market street, where the loss of life was greatest, was located many cheap and crowded lodging houses. Among others the caving in of the Royal, corner Fourth and Minna streets, added to the horror of the situation by the shrieks of its many scores of victims imbedded in the ruins.

The collapsing of the Porter House on Sixth street, between Mission and Market, came about in a similar manner. Fully sixty persons were entombed midst the crash. Many of these were saved before the fire eventually crept to the scene.

Part of the large Cosmopolitan House, corner Fifth and Mission streets, collapsed at the very first tremble. Many of the sleepers were buried in the ruins; other escaped in their night clothes.

At 775 Mission street the Wilson House, with its four stories and eighty rooms, fell to the ground a mass of ruins. As far as known very few of the inmates were rescued.

The Denver House on lower Third street, with its many rooms, shared the same fate and none may ever know how many were killed, the majority of the inmates being strangers.

A small two-story frame building occupied by a man and wife at 405 Jessie street collapsed without an instant's warning. Both were killed.

To the north of Market street the rooming-house people fared somewhat better. The Luxemburg, corner of Stockton and O'Farrell streets, a three-story affair, suffered severely from the falling of many tons of brick from an adjoining building. The falling mass crashed through the building, killing a man and woman.

At the Sutter street Turkish baths a brick chimney toppled over and crashing through the roof killed one of the occupants as he lay on a cot. Another close by, lying on another cot, escaped.

Two hundred bodies were found in the Potrero district, south of Shannon street in the vicinity of the Union Iron works, were cremated at the Six-Mile House, on Sunday by the order of Coroner Walsh. Some of the dead were the victims of falling buildings from the earthquake shock, some were killed in the fire.

So many dead were found in this limited area that cremation was deemed absolutely necessary to prevent disease. The names of some of the dead were learned, but in the majority of cases identification was impossible owing to the mutilation of the features.

A systematic search for bodies of the victims of the earthquake and fire was made by the coroner and the state board of health inspectors as soon as the ruins cooled sufficiently to permit a search.

The body of an infant was found in the center of Union street, near Dupont street.

Three bodies were found in the ruins of the house on Harrison street between First and Second streets. They had been burned beyond all possibility of identification. They were buried on the north beach at the foot of Van Ness avenue.

The body of a man was found in the middle of Silver street, between Third and Fourth streets. A bit of burned envelope was found in the pocket of the vest bearing the name "A. Houston."

The total number of bodies recovered and buried up to Sunday night was 500. No complete record can ever be obtained as many bodies were buried without permits from the coroner and the board of health.

Whenever a body was found it was buried immediately without any formality whatever and, as these burials were made at widely separated parts of the city by different bodies of searchers, who did not even make a prompt report to headquarters, considerable confusion resulted in estimating the number of casualties and exaggerated reports resulted.

CHAPTER XXI.

VESUVIUS THREATENS NAPLES.

Beautiful Italian City on the Mediterranean Almost Engulfed in Ashes and Lava from the Terrible Volcano — Worst Eruption Since the Days of Pompeii and Herculaneum — Buildings Crushed and Thousands Rendered Homeless.

THE worst eruption of Mt. Vesuvius since the days when it buried under molten lava and ashes Pompeii and Herculaneum occurred on April 6, 1906. Almost without warning the huge crater opened its fiery mouth and poured from its throat and fiery interior and poured down the mountain sides oceans of burning lava, and warned 60,000 or 70,000 inhabitants of villages in the paths of the fiery floods that their only safety was in immediate flight. From the very start the scene was terrible and awe-inspiring. From the summit of the mountain a column of fire fully 1,000 feet leaped upward and lighted by its awful glare the sky and sea for miles around. Occasionally great masses of molten stone, some weighing as much as a ton were, accompanied by a thunderous noise, ejected from the crater and sent crashing down the mountain side, causing the natives, even as far as Naples, to quake with fear, abandon their homes and fall, praying, on their knees. One of the immense streams of lava which flowed from the crater's mouth was more than 200 feet wide and, ever broadening, kept advancing at the rate of 21 feet a minute.

The first great modern eruption was that of 1631, eleven years after the pilgrim fathers landed on Plymouth rock. A sudden tidal wave of lava, utterly unexpected, engulfed 18,000 people, many of the coast towns being wholly and the remainder partially wiped out.

In 1707 the volcano sent forth a cloud of ashes so dense that at midday in the streets of Naples the blackness of the darkest night reigned supreme. The shrieks of terror stricken women pierced the air and the churches were crowded by the populace. The relics of San Januarius—his skull among them—were carried in procession through the streets.

Thirty years later a stream of lava one mile wide and containing 300,000,000 cubic feet burst from the mountain side. The next notable eruption was that of 1760, when new cones formed at the side and gave forth lava, smoke and ashes. Seven years later the king of Naples hastily retreated into the capital from the palace at Portici, threatened by a fresh outburst, and found the Neapolitans again in confusion.

An eruption lasting a year and a half commenced in 1793. Lava was emitted for fifteen hours and the sea boiled 100 yards from the coast.

That the Vesuvius eruptions are gaining in frequency is attested by the record of the nineteenth century, surpassing as it does that of the eighteenth. The first of note occurred in 1822, when the top of the great cone fell in and a lava stream a mile in width poured out. Twelve years later a river of lava nine miles long wiped out a town of 500 houses.

Lava flowed almost to the gates of Naples in 1855 and caused a deplorable loss of property to the cultivated region above.

Blocks of stone forty-five feet in circumference were hurled down the mountain by the spectacular outburst of 1872. Two lava floods rushed down the valley on two sides, ashes were shot thousands of feet in the air and the sea rose for miles. More than 20,000,000 cubic feet of lava was ejected in a single day.

Since 1879 Vesuvius has been variously active there being two eruptions of note in 1900 and two others in 1903. But that of 1905 was more violent than any since 1872. Red hot stones hurled 1,600 feet above the cone dropped down the flanks of the mountain with deafening sound. One stone thrown out weighed

two tons, while 1,844 violent explosions were recorded in a single day by the instruments of the seismic observatory.

The cog railroad running nearly to the top has been badly damaged a number of times in recent years and the occupants of the meteorological observatory on or near the summit have had several narrow escapes.

This institution is situated about a mile and a half from the cone, near the foot of the rope railway ascending that troubled apex. It is a handsome edifice of white stone and can be seen at a great distance against the black background of lava. It stands on the side toward Naples, on the top of a conspicuous ridge 2,080 feet above the level of the sea. On each side of this ridge flows a river of lava during eruptions, but the building has withstood all, unscathed, as yet.

An observer is on duty, night and day, even during the most violent outbursts. During the late one, when a sheet of red-hot lava glowed on either side of the ridge and when fiery projectiles fell all about, the post was not deserted. Inside, mounted upon piers penetrating the ground, are delicate instruments whose indicating hands, resting against record sheets of paper, trace every movement made by the shuddering mountain. One sign by which these great outbursts may almost always be forecast is the falling of water in the wells of the neighboring villages.

The Vesuvian volcanic region, like that of Aetna, is partly land and partly sea, including all of the Bay of Naples, sometimes called "the crater," lying at the very foot of Vesuvius, with a circuit of fifty-two miles and the metropolis at the extreme northern corner.

The whole base of the mountain is skirted by a series of villages where abide 100,000 souls—birds nesting in the cannon's mouth. Between these settlements and even above, within the jaws of the fiery demon, the tourist sees scattered huts, tent shaped of straw interwoven.

A road twenty miles long, commencing at Naples, extends

southeastwardly along the shore of the bay and then, winding inland, completely encircles the mountain. This is dotted with villages, all within hearing of the volcanic rumblings and bellowings.

Four miles down the bay road from Naples lies Portici, its 12,000 population dwelling upon lava thrown down to the sea by the eruption of 1631. On this black bed stands the royal palace, built by Charles III. in 1738. Resina, one mile further, is the favorite suburban seat of wealthy Neapolitans. Its 14,000 residents dwell partly upon the ruins of Herculaneum and of Retina, to which latter city Pliny the elder set out during the great eruption which destroyed these cities and Pompeii.

The colossal brazier of Mount Vesuvius dealt most awfully and destructively with the towns on its declivities and near its base. The inhabitants of those villages naturally became panic-stricken and abandoned their homes for the open, although the atmosphere was dense with volcanic ashes and the sulphur fumes of subterreanean fires. The people, so long as they dared remain near their homes, crowded the churches day and night, praying for deliverance from the impending peril, manifestations of which were hourly heard and felt in explosions which resembled a heavy cannonade, and in the tremblings of the earth, which were constantly recurring.

The intense heat of the lava destroyed vegetation before the stream reached it. The peasants of Portici, at the west foot of Vesuvius, cleared their grounds of vineyards and trees in the effort to lessen the danger from the fire and resist the progress of the lava to the utmost.

The streams of lava became resistless. They snapped like pipe stems the trunks of chestnut trees hundreds of years old and blighted with their torrid breath the blooms on the peach trees before the trees themselves had been reached. The molten streams did not spare the homes of the peasants, and when these have been razed they dash into the wells, as though seeking to

slake their thirst, and, having filled them, continue their course down the mountain side.

Everywhere in the vicinity of the volcano pitiful scenes were witnessed—women tearing their hair in their grief and old men crying aloud at the loss of their beloved homesteads, while in the distance, in striking contrast, were the sapphire-colored Mediterranean, the violet-hued mountains of the Sorrento peninsula and the island of Capri in the tranquil sea.

The town of Bosco Trecase, on the mountain's southern declivity, had been transformed into a gray island of ruin by the ashes from the crater of the volcano. Torrents of liquid fire, resembling in the distance serpents with glittering yellow and black scales, coursed in all directions, amid rumblings, detonations and earth tremblings while a pall of sulphurous smoke that hovered over all made breathing difficult.

While the inhabitants, driven before soldiers, were urged to seek safety in flight, fiery lava was invading their homes and the cemetery where their dead was buried. In about 48 hours after the eruptions began not a trace remained of Bosco Trecase, a city of 10,000 population. Several lads who were unharmed when the danger following the eruptions of Mount Vesuvius seemed most imminent subsequently ventured to walk on the cooling lava. They went too far and the crust broke under their weight. They were swallowed up before the helpless onlookers.

About the same time the village of Bosco Reale, to the eastward, became threatened, and the women of the village, weeping with fright, carried a statue of St. Anne as near as they could go to the flowing lava, imploring a miracle to stay the advance of the consuming stream. As the fiery tide persisted in advancing the statue had to be frequently moved backward.

Ottajano, at the northeast foot of the mountain, and 12 miles from Naples, was in the path of destruction and the scenes there when the first victims were unearthed were most terrible. The positions of the bodies showed that the victims had died while in

a state of great terror, the faces being convulsed with fear. Three bodies were found in a confessional of one of the fallen churches.

One body was that of an old woman who was sitting with her right arm raised as though to ward off the advancing danger. The second was that of a child about 8 years old. It was found dead in a position which would indicate that the child had fallen with a little dog close to it and had died with one arm raised across its face to protect itself and its pet from the crumbling ruins. The third body, that of a woman, was reduced to an unrecognizable mass.

Other bodies which were found later caused such an impression among the already frantic population that the authorities did not deem it advisable to permit any more bodies to be identified for the time being.

Five churches and ten houses fell under the weight of ashes and cinders, which lay over four feet deep on the ground. Many were killed and injured.

One mile southward from the site of Bosco Trecase, on the shore of the Gulf of Naples, is Torre Annunziata, a city of 30,000 inhabitants, and the streams of lava having almost surrounded it the inhabitants deserted their homes in terror and fled to Naples and other points. This place was destroyed by an eruption in 1631. At the northern boundary of the town is a picturesque cypress-planted cemetery, and there the lava stream was halted and turned aside. It was as if the dead had effectually cried out to arrest the crushing river of flame, as at Catania the veil of St. Agathe is said to have stayed a similar stream from Mount Etna.

The visit of the King and Queen of Italy and the Duke of Aosta to the town caused a rumor to be started by the excited people, and particularly among the panic-stricken women, that their presence had resulted in a miracle, and, singularly enough, shortly after the arrival of the sovereigns, and while the King and Queen were trying to console the people, repeating frequently,

"Courage! Be strong!" the wind suddenly changed and the atmosphere, which up to that moment had been impregnated with sulphurous gas and suffocating fumes, cleared away and the sun burst forth. The stream of lava stopped its march, after having destroyed a section of the northeast part of the suburb.

The air rang with benedictions for the King from his devoted subjects. Hope at once returned and the King and Queen were preparing to move on, but the people insisted that they remain, begging that they be not abandoned. The King and Queen wished to visit Torre Del Greco, which is only seven miles distant from Naples, and was also in danger of being wiped out, and the people fled from it in dismay, amid a continued fall of sand and ashes, to points of reputed safety. This village had been eight times destroyed and as often rebuilt. A violent storm of sulphurous rain occurred at San Giuseppe, Vesuviana and Saviano.

The town of Nola, an old place of 15,000 inhabitants, twenty-two miles from Naples, was almost buried under the shower of ashes coming from the crater, which were carried by the wind as far as the Adriatic sea.

The inhabitants of the country in the vicinity of Caserta, a place of about 35,000 people, and termed the Versailles of Naples, were also endangered by cinder ashes and flowing lava.

The village of San Gennaro was partially buried in sand and ashes and several houses were crushed. At that place three persons were killed and more than twenty injured.

Sarno, Portici, Ciricello, Poggio and Morino became practically uninhabitable because of the ashes and fumes, and the people fled from the town. At Sarno three churches and the municipal buildings collapsed. The sand and cinders were six feet deep there and all the inhabitants sought safety in flight.

Sarno is a town of some 10,000 people and is situated about ten miles east of Mount Vesuvius. It contains an old castle, some

sulphur baths and manufactories of paper, copper wares, cotton goods and silk fabrics.

Almost equal to the devastation wrought by the lava was the damage done by cinders and ashes, which in increditable quantities had been carried great distances. This has caused the practical destruction of San Guiseppe, a place of 6,000 inhabitants. All but 200 of the people had fled from there and of these 200 who had assembled in a church to attend mass about 100 were killed.

While the priest was performing his sacred office the roof fell in and all who were not killed were badly injured. These unfortunates were for hours without surgical or medical assistance. The only thing left standing in the church was a statue of St. Anne, the preservation of which the poor, homeless people accepted as a miracle and promise of deliverance from their peril.

A runaway train from San Guiseppe for Naples was derailed, owing to showers of stones from the crater. At some points near the mountain it was estimated that the sands and ashes reached a height of nearly 150 feet.

San Georgio, Cremona, Somma Vesuviana, Resina and other inland and coast towns not mentioned above, also suffered terrible devastation.

The most of the buildings in the villages were of flimsy construction with flat roofs and so were but poorly calculated to bear the weight of ashes and cinders that fell upon them. Inevitably it was found that a considerable number of persons perished by the falling of their homes.

National and local authorities from the first evidences of danger attempted the evacuation of the threatened villages and towns, but adequate means to transport the inhabitants were lacking, although thousands of soldiers with artillery carts had been sent to the places where the sufferers were most in need of assistance.

At many places the people were suffering from panic and a

VESUVIUS IN ERUPTION—THE VOLCANO THAT DESTROYED POMPEII.

VOLCANO MAYON.

This is the great Volcano of the Philippines and one of the most destructive in the world. It is situated on the Island of Luzon. The eruption of June 25, 1897, threw lava for a hundred miles.

state of great confusion existed, which was added to by superstition. Some of the parish priests refused to open their churches to people who tried to obtain admittance, fearing that an earthquake would destroy the buildings when full of people and thus increase the list of disasters.

Crowds of women thereupon attacked the churches, pulled down the doors and took possession of the pictures and statues of the saints, which they carried about as a protection against death.

Many people camped along the roads and in the fields, where they thought they would be safer than in the towns, defying the elements, though nearly blinded by ashes, wet to the skin by rain and terrorized by the gigantic curved flaming mass above, resembling a scimitar ready to fall upon them.

The atmosphere during the eruptions was oppressive and yellow with ashes from Vesuvius, causing a feeling of apprehension regarding what the future may hold in store for this city and its vicinity. The volcano was completely hidden in a dense mass of cinder-laden smoke, the only other signs of activity being frequent and very severe detonations and deep rumblings.

All the trains from and to Naples were delayed owing to the tracks being covered with cinders and telegraphic communication with all points was badly congested.

An excursion steamer attempting to reach Naples from the island of Capri had to return, as the passengers were being suffocated by the ashes.

The quantity of ashes and cinders thrown during the eruptions was unprecedented. An analysis showed this discharge to be chiefly composed of iron, sulphur and magnesia. When dry the whole region seemed to be under a gray sheet, but after a fall of rain it appeared to have been transformed into an immense lake of chocolate.

During the activity of the mountain several new craters had

opened, especially on its north side and from which streams of lava flooded the beautiful, prosperous and happy land lying on the southeast shores of the Gulf of Naples.

The whole of Vesuvius district as far as Naples, Casserta and Castellammare became one vast desert. The high cone of the volcano was almost entirely destroyed having been swallowed up, so that the height of the mountain is now several hundred feet less than formerly. Its falling in caused a great discharge of red hot stones, flame and smoke.

Professor Di Lorenzo, the scientist and specialist in the study of volcanoes, estimated that the smoke from Vesuvius had reached the height of 25,000 feet. After one of the eruptions ashes from Vesuvius were noticeable in Sicily which is a large island near the extreme end of the peninsula on which Naples is situated and some 200 miles from the crater.

CHAPTER XXII.

SCENES IN FRIGHTENED NAPLES.

Blistering Showers of Hot Ashes—The People Frantic—Cry Everywhere "When Will It End?" — Atmosphere Charged with Electricity and Poisonous Fumes.

FROM the first outburst and glare of the eruption all Naples became aroused and trembled with anticipations of horror, and when the hot ashes from the crater of Vesuvius began to fall in blistering showers upon it the entire populace was seized with a fear, which for days was constant, that at any moment they might be crushed into eternity by the awful outpourings from the cauldron of the mountain which was in truth as veritable an inferno as that pictured by Dante. The streets for days, even up to the subsidence of the eruption, were packed with surging crowds, all of whom were fatigued from fear and loss of rest, yet there was hardly one in all the thousands who had not strength enough to pray to the Almighty for deliverance.

At times the fall of sand and ashes appeared to be diminishing, but in the next instant it came again, apparently in greater force than before. The city became frantic from fear and everywhere was heard: "When will it all end?"

The people deserted their shops, the manufactories were nearly all shut down, while the theaters, cafes and places of amusements throughout the city were all closed. The crowds were in a temper for any excess and it would only require a spark to start a conflagration that would have almost equalled that of Vesuvius itself.

When the coating of ashes and cinders covered the ground and

roofs of buildings the people believed that their loved and beautiful Naples was doomed, and would be known thereafter only to archaeologists like other cities which Vesuvius in its wrath had overwhelmed.

All railroad service out of the city was interrupted, the engineers refusing to take out their trains because of the darkness caused by the heavy fall of ashes.

Troops were kept constantly clearing the roofs of buildings of the accumulation of sand and ashes which endangered the structures. The large glass-covered galleries throughout the city, were ordered closed lest the weight upon the roofs should cause them to collapse.

Warships and soldiers which had been ordered to the city did effective service in succoring the most distressed and in the removal of refugees. Their presence was also potent in keeping up public confidence and maintaining order. No danger was too great for the troops to encounter and no fatigue too severe for them. They earned the gratitude and admiration of the people by their devotion to duty and bravery. Not only were they credited with many acts of heroism but they displayed untiring perseverance in searching for the living and the dead among tottering walls, assisting fugitives to reach places of safety, giving aid to the wounded and in burying the dead, and all this while partly suffocated by the ash and cinder laden wind blowing from the volcano.

The employes of a tobacco factory at Naples, thinking the roof was about to fall in fled in panic from the building and communicated their fears to so many people outside that the police were compelled to interfere and restore order. Many persons were injured during the panic.

The prisoners in the city jail mutinied owing to fright and succeeded in breaking open some of the doors inside the building, but were finally subdued by the guards.

King Victor Emmanuel and his Queen, the Duke and Duchess

of Aosta and others of the royal household were active in rendering aid. The king placed the royal palace of Cappodimonti, situated above this city, at the disposal of the wounded refugees. Firemen and ambulance corps were sent from Rome to aid the sufferers.

The work of succor was hampered owing to delays to the railway service, which was interrupted by red-hot stones thrown to a height of 3,000 feet falling on the tracks.

Not for a century had Naples been so threatened nor its people thrown into such a state of panic. Men, women and children tramped about the streets, raving that their deity had forgotten them and that the end of the world was in sight.

Thousands of people flocked from the towns and farms on the slopes of the mountain and the problem of feeding and caring for the horde had grown serious. These people were left homeless by the streams of lava, which lapped up all their property in some cases within a half hour after the owners had fled.

Earthquake shocks which shattered windows and cracked the walls of buildings added to the terror and when a shock occurred the entire population rushed to the streets in terror, many persons crying, "The Madonna has forsaken us; the end of the world has come."

Vessels lying in the harbor rapidly put to sea with hundreds of the wealthy families, who chartered them outright, while many other ships left because of fear of tidal waves similar to those accompanying the terrific eruption of a century ago, which wrecked scores of vessels and drowned thousands of people here.

The atmosphere of the city became heavily charged with electricity, while breathing at times became almost impossible because of the poisonous fumes and smoke. The detonations from the volcano resembled those of terrible explosions and the falling of the hot ashes made life indeed a burden for the Neapolitans.

The churches of the city were open during the days and nights and were crowded with panic-stricken people. Members of the

clergy did their utmost to calm their fears, but the effects of their arguments went almost for naught when renewed earthquake shocks were experienced.

While Mount Vesuvius continued active volumes of cinders and ashes emitted from the volcano fell upon the buildings and streets driving the inhabitants of the city into a condition bordering on frenzy. All night people roamed the streets praying and crying that they might be spared.

The collapse of the Mount Oliveto market, in which 200 or more persons were caught, many being crushed beyond recognition and the continuous rain of sand and ashes throughout the city sent terror to the heart of every Neapolitan.

This market covered a plat of ground 600 feet square. The scenes in the vicinity of the ruins were agonizing, relatives of the victims clamoring to be allowed to go to their dead or dying.

The people seemed demented. They surrounded the market, in many cases tearing their hair, cursing and screaming, "Oh, my husband is there!" or, "Bring out my child!" and endeavoring with their own hands to move heavy beams, from beneath which the groans of the injured were issuing.

The cries for help were so heartrending that even rescuers were heard to sob aloud as they worked with feverish eagerness to save life or extract the bodies of the dead from the ruins.

Some of the people about the market were heard to exclaim that a curse rested upon the people of Naples for repudiating their saints Monday, when Mount Vesuvius was in its most violent mood.

Even with the sun shining high in the heavens the light was a dim yellow, in the midst of which the few people who remained in the stricken towns, their clothing, hair and beards covered with ashes, moved about in the awful stillness of desolation like gray ghosts.

Railway and tramway travel to and from Naples was much hampered by cinders and ash deposits, and telegraphic commun-

ication with the towns farthest in the danger zone was also for a time interrupted.

The scenic effects varied from hour to hour during the eruptions. At times in the north the sky was chocolate colored, lowering and heavy, under which men and women with their hair and clothing covered with ashes moved above like gray ghosts. Fort San Martino, as it towered above the town, could only just be seen, while Castel Dell'ovo was boldly marked in light, seeming like silver against the brown sky.

To the south beyond the smoke zone lay smiling, sunny Posilipo and its peninsula, while far away glistened the sea a deep blue, on which the islands seemed to float in the glow of the setting sun. Adding to the strange picture, one of the French men of war, which arrived in the bay of Naples was so placed as to be half in the glow and half obscured by the belt of falling ashes.

From the observatory of Mount Vesuvius, where Director Matteucci continued his work in behalf of science and humanity, the scene was one of great impressiveness. To reach the observatory one had to walk for miles over hardened but hot lava covered with sand until he came to a point whence nothing could be seen but vast, gray reaches, sometimes flat and sometimes gathered into huge mounds which took on semblance of human faces.

Above, the heavens were gray like the earth beneath and seemed just as hard and immovable. In all this lonely waste there was no sign of life or vegetation and no sound was heard except the low mutterings of the volcano. One seemed almost impelled to scream aloud to break the horrible stillness of a land seemingly forgotten both by God and man.

In many of the towns some of the inhabitants went about hungry and with throats parched with smoke and dust, seemingly unable to tear themselves away from the ruins of what so recently were their homes.

The Italian minister of finance suspended the collection of taxes in the disturbed provinces and military authorities distributed rations and placed huts and tents at the disposition of the homeless.

The property loss from the volcanic outbreak has been placed at more than $25,000,000, while some have estimated that the number of persons rendered homeless amounted to nearly 150,000. Probably less than one-half of that number would come near the exact figures.

As an evidence of the wide-spread and far-reaching influences set in motion by the eruptions of Vesuvius it should be noted that Father Odenbach of St. Ignatius' college in Cleveland, O., the noted authority on seismic disturbances, reported that his microseismograph, the most delicate instrument known for detecting the presence of earthquakes in any part of the globe, had plainly recorded the disturbances caused by the eruption of Vesuvius. The lines made by the recorder, he said, had shown a wavy motion for several days, indicating a severe agitation in the earth's surface at a remote point.

CHAPTER XXIII

VOLCANOES AND EARTHQUAKES EXPLAINED

The Theories of Science on Seismic Convulsions—Volcanoes Likened to Boils on the Human Body through Which the Fires and Impurities of the Blood Manifest Themselves—Seepage of Ocean Waters through Crevices in the Rock Reach the Internal Fires of the Earth—Steam is Generated and an Explosion Follows—Geysers and Steam Boilers as Illustrations—Views of the World's Most Eminent Scientists Concerning the Causes of Eruption of Mount Pelee and La Soufriere.

THE earth, like the human body, is subject to constitutional derangement. The fires and impurities of the blood manifest themselves in the shape of boils and eruptions upon the human body. The internal heat of the earth and the chemical changes which are constantly taking place in the interior of the globe, manifest themselves outwardly in the form of earthquakes and volcanoes. In other words, a volcano is a boil or eruption upon the earth's surface.

Scientists have advanced many theories concerning the primary causes of volcanoes, and many explanations relating to the igneous matter discharged from their craters. Like the doctors who disagree in the diagnosis of a human malady, the geologists and volcanists are equally unable to agree in all details concerning this form of the earth's ailment. After all theories relating to the cause of volcanoes have been considered, the one that is most tenable and is sustained by the largest number of scientific men is that which traces volcanic effects back to the old accepted cause of internal fires in the center of the earth. Only in this way can the molten streams of lava emitted by volcanoes be accounted for.

The youngest student of familiar science knows that heat generates an upward and outward force, and like all other forces that it follows the path of least resistance. This force is always present in the internal regions of the earth, which for ages upon ages has been gradually cooling from its poles toward its center. When conditions occur by which it can outwardly manifest itself, it follows the natural law and escapes where the crust of the earth is thinnest.

But something more than the mere presence of internal fire is necessary to account for volcanic action, although it may in a large degree account for minor seismic convulsions in the form of an earthquake. The elements which enter into the source of volcanic eruption are fire and water. The characteristic phenomenon of a volcanic eruption is the steam which issues from the crater before the appearance of the molten lava, dust, ashes and scoria. This accepted theory is plainly illustrated in the eruption of a geyser, which is merely a small water volcano. The water basin of a geyser is connected by a natural bore with a region of great internal heat, and as fast as the heat turns the water into steam, columns of steam and hot water are thrown up from the crater.

One form of volcanic eruption, and its simplest form, is likewise illustrated in a boiler explosion. Observations of the most violent volcanic eruptions show them to be only tremendous boiler explosions at a great depth beneath the earth's surface, where a great quantity of water has been temporarily imprisoned and suddenly converted into steam. In minor eruptions the presence of steam is not noticeable in such quantities, which is simply because the amount of imprisoned water was small and the amount of steam generated was only sufficient to expel the volcanic dust and ashes which formed between the earth's surface and the internal fires of the volcano. The flow of lava which follows violent eruptions is expelled by the outward and upward force of the great internal heat, through the opening made by the steam which precedes it

The two lines of volcanoes, one north and south, the other east and west, which intersect in the neighborhood of the West Indies, follow the courses where the crust of the earth is thinnest and where great bodies of water lie on the shallowest parts of the ocean bed.

The terrific heat of the earth's internal fires is sufficient to cause crevices leading from these bodies of water to the central fires of the volcano, and the character of the volcanic eruption is determined largely by the size of the crevices so created and the amount of water which finds its way through them. The temperature of these internal fires can only be guessed at, but some idea may be formed of their intense heat from the streams of lava emitted from the volcano. These will sometimes run ten or twelve miles in the open air before cooling sufficiently to solidify. From this it will be seen that the fires are much hotter than are required merely to reduce the rock to a liquid form. From this fact, too, may be seen the instantaneous action by which the water seeping or flowing into the volcano's heart is converted into steam and a tremendous explosive power generated.

The calamity which befell Martinique and St. Vincent will unquestionably lead to a fresh discussion of the causes of volcanic disturbance. Not all of the phenomena involved therein are yet fully understood, and concerning some of them there are perceptible differences of opinion among experts. On at least one point, however, there is general agreement. At a depth of about thirty miles the internal heat of the earth is probably great enough to melt every known substance. Confinement may keep in a rigid condition the material which lies beneath the solid crust, but if an avenue of escape is once opened the stuff would soften and ooze upward. There is a growing tendency, moreover, to recognize the importance of gravitation in producing eruptions. The weight of several miles of rock is almost inconceivable, and it certainly ought to compel "potentially plastic" matter to rise through any crev-

ice that might be newly formed. Russell, Gilbert and some other authorities regard this as the chief mechanical agent in an eruption, at least when there is a considerable outpouring of lava.

As to the extent to which water operates there is some lack of harmony among volcanists. Shaler, Milne and others hold that substance largely, if not entirely, responsible for the trouble. They point to the fact that many volcanoes are situated near the coast of continents or on islands, where leakage from the ocean may possibly occur. Russell, on the other hand, regards water not as the initial factor, but as an occasional, though important, reinforcement. He suspects that when the molten rock has risen to a considerable distance it encounters that fluid, perhaps in a succession of pockets, and that steam is then suddenly generated. The explosive effects which ensue are of two kinds. By the expansion of the moisture which some of the lava contains the latter is reduced to a state of powder, and thus originate the enormous clouds of fine dust which are ejected. Shocks of greater or less violence are also produced. The less severe ones no doubt sound like the discharge of artillery and give rise to tremors in the immediate vicinity. In extreme cases enough force is developed to rend the walls of the volcano itself. Russell attributes the blowing up of Krakatoa to steam. The culminating episode of the Pelee eruption, though not resulting so disastrously to the mountain, would seem to be due to the same immediate cause. To this particular explosion, too, it seems safe to assign the upheaval which excited a tidal wave.

The precise manner in which the plastic material inside of the terrestrial shell gets access to the surface, is not entirely clear. Nevertheless, it is possible to get some light on the matter. It is now well known that in many places there are deep cracks, or "faults," in the earth's crust. Some of them in the remote past have been wide and deep enough to admit molten material from below. The Palisades of the Hudson

are believed to have been formed by such an intrusion, the adjacent rock on the eastern face having since been worn away by the weather or other agents. It has been observed that many volcanoes are distributed along similar faults.

The existence of a chain of volcanic islands in the West Indies suggests the probability that it follows a crack of great antiquity, though the issue of lava and ashes for several centuries may have been limited to a few isolated points. Just how these vents have been reopened is one of the most difficult questions still left for investigation. Given a line of weakness in the rocks, though, and a susceptibility to fresh fracture is afforded. Professor McGee suggests that the overloading of the ocean bed by silt from the Mississippi river or other sources may have been the immediately exciting cause of the recent outbreaks. Other geologists have found a similar explanation acceptable in the case of eruptions elsewhere. The theory has much to commend it to favor.

The Martinique disaster already has drawn from geologists and volcanists many expressions of opinion, and explanations of volcanic phenomena which set forth in detail the causes and effects of volcanic eruptions, in particular, and seismic convulsions, in general.

Dr. A. R. Crook, a professor in Northwestern University, has made a special study of volcanoes. He has made an ascent of the two highest in the world, and has climbed many others for purposes of study. He is an authority upon volcanography.

"There are two great circles of volcanoes about the earth," said Professor Crook. "One girdles the earth north and south, extending through Tierra del Fuego (called 'land of fire' because of its volcanoes), Mexico, the Aleutian islands and down through Australia; the other east and west through Hawaii, Mexico, West Indies, Italy (including Mount Vesuvius and Asia Minor.

'These two circles intersect at two points. One of these is

the West Indies, which include Martinique, the scene of this terrible disaster; the other is in the islands of Java, Borneo and Sumatra. On the latter islands there are extinct volcanoes. On the former is the terrible Pelee. It is just at these points of intersection of the two volcanic rings that we expect unusual volcanic activity, and it is there that we find it.

"There has been more or less theorizing as to volcanic disturbances moving in cycles, but it cannot be proved. One fact is established, and that is that a volcano is an explosion caused by water coming in contact with the molten mass below the surface of the earth. This is proved by the great clouds of steam that accompany the action.

"The old theory that the very center of the earth is a molten mass," he says, "is no longer held." He asserts the latest idea is that the center of the earth is more rigid than glass, though less rigid than steel. About this there is more or less molten matter, and over all the surface crust of the earth. This molten matter causes the surface of the earth to give, to sag, and form what is called "wrinkling." When water comes in contact with the heated mass an explosion follows that finds its outlet through the places where there is least resistance, and the result is a volcano.

"There is no part of the earth's surface which is exempt from earthquakes," said Professor Crook, "and there is no regularity in their appearance. Volcanic eruptions are almost always preceded by earthquakes somewhere in the circle. Recently there were earthquakes in the City of Mexico in which many lives were lost. As it is impossible to predict when the next will take place, it is also impossible to tell where it will be. It will certainly be somewhere in the line of the two circles.

"All this is of interest as showing that the earth is still in process of formation just as much as it was a billion years ago. We see the same thing in Yellowstone Park. There most decided changes have taken place even in the last eight years.

Old Faithful, which used to play regularly every sixty minutes, now does so only once in twice the time."

With reference to contributions to science, which might be expected from investigations at Martinique, Professor Crook said:

"Even new elements might be discovered, and seismic theories either confirmed or disproved. A volcano always throws off a great variety of materials, hydrochloric and sulphuric acids, iron, silica (sand), sulphur, calcium and magnesium. The lava is of two kinds. That which is easily fusible flows more rapidly than a horse can trot. A more viscous kind cools into shapes like ropes. The latter is common in Hawaii.

"The danger of living in proximity to a volcano is usually well known, but the iron oxides render the soil extremely fertile. This is seen in Sicily about Ætna and Vesuvius. It is seen also in Martinique, where an area of forty miles square was occupied by 160,000 people.

"Owing to the presence of the fumes of chlorine it is probable that many of the victims in St. Pierre were asphyxiated, and so died easily. Others doubtless were buried in ashes, like the Roman soldier in Pompeii, or were caught in some enclosed place which being surrounded by molten lava resulted in slow roasting. It is indeed a horrible disaster and one which we may well pray not to see duplicated. Science, however, has no means of knowing that it may not occur again."

Professor Robert T. Hill, of the United States Geological Survey, who visited the French West Indies on a tour of scientific inspection, says:

"Across the throat of the Caribbean extends a chain of islands which are really smoldering furnaces, with fires banked up, ever ready to break forth at some unexpected and inopportune moment. This group, commencing with Saba, near Porto Rico, and ending with Grenada, consists of ancient ash heaps, piled up in times past by volcanic action. For nearly

one hundred years there has been not the slightest sign of explosion and we had grown to class these volcanoes as extinct.

"Volcanism is still one of the most inexplicable and profound problems which defy the power of geologists to explain, and one of its most singular peculiarities is the fact that it sometimes breaks forth simultaneously in widely distant portions of the earth. A sympathetic relation of this kind has long been known between Hecla and Vesuvius, and it is very probable that the Carib volcances have some such sympathetic relation with the volcanoes of Central America and southern Mexico. At the time of the explosion of St. Vincent other explosions preceded or followed it in northern South America and Central America.

"The outburst of Mount Pelee, in Martinique, is apparently the culmination of a number of recent volcanic disturbances which have been unusually severe. Colima, in Mexico, was in eruption but a few months previous, while Chelpancingo, the capital of the State of Guerrero, was nearly destroyed by earthquakes which followed.

"Only a few days before Mount Pelee erupted, the cities of Guatemala were shaken down by tremendous earthquakes."

Professor N. S. Shaler, of Harvard University, a world authority on volcanic disturbances, says:

"Volcanic outbreaks are merely the explosion of steam under high pressure—steam which is bound in rocks buried underneath the surface of the earth and there subjected to such tremendous heat that when the conditions are right its pent up energy breaks forth, and it shatters its stone prison walls into dust.

"The common belief is that water enters the rocks during the crystallization period, and that these rocks, through the natural action of rivers and streams, become deposited in the bottom of the ocean. Here they lie for many ages, becoming buried deeper and deeper under masses of like sediment.

AN UNUSUAL RESCUE PARTY.

Men with peculiar ability to detect sounds were sent into the ruins to listen for breathing, groans or moans of possible survivors.

EVENING POST. MERCHANTS EXCHANGE. MILLS BUILDING.

RUINS OF SAN FRANCISCO AFTER THE FIRE.

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which are constantly being washed down upon them from above. This process is called the blanketing process.

"When the first layer has reached a depth of a few thousand feet the rocks which contain the water of crystallization are subjected to a terrific heat. This heat generates steam, which is held in a state of frightful tension in its rocky prison.

"It is at these moments that volcanic eruptions occur. They result from wrinkling in the outer crust of the earth's surface—wrinklings caused by the constant shrinking of the earth itself and by the contraction of the outer surface as it settles on the plastic center underneath. Fissures are caused by these foldings, and as these fissures reach down into the earth the pressure is removed from the rocks and the compressed steam in them and it explodes with tremendous force.

"The rocks containing the water are blown into dust which sometimes is carried so high as to escape the power of the earth's attraction and float by itself through space. After the explosions have occurred lava pours forth. This is merely melted rock which overflows like water from a boiling kettle. But the explosion always precedes the flow, and one will notice that there is always an outpouring of dust before the lava comes."

Professor W. J. McGee, of the Smithsonian Institution at Washington, says: "It may be that a violent earthquake tremor came after the volcanic eruption, but it does not necessarily follow that the two travel together. Oftentimes we hear of earth tremors with no apparent accompaniment. This was true of the Charleston earthquake in 1886. Earthquakes are caused by mysterious disturbances in the interior of the earth. The most commonly accepted belief is that massive rock beds away down in the earth, at a depth of twelve miles or more, become disturbed from one cause or another, with the result that the disturbance is felt on the earth's surface, sometimes severely, sometimes faintly.

"Probably the most violent earthquake in history occurred about ten years ago at Krakatoa. The explosion could be

heard for more than one thousand miles, and the earth's tremors were felt for thousands of miles. The air was filled with particles of earth for months afterward. The air-waves following the explosion are believed to have passed two and one-half times around the globe. The face of the land and sea in the vicinity of the eruption was completely changed."

Dr. E. Otis Hovey, professor in the Museum of Natural History, New York, offers the following explanation of the Martinique disaster:

"A majority of volcanic eruptions are similar in cause and effect to a boiler explosion. It is now the accepted belief that sudden introduction of cold water on the great molten mass acts as would the pouring of water into a red hot boiler. It causes a great volume of steam, which must have an outlet. You can readily see how water could get into the crater, located as this one was—on an island, and not far from the coast. The volcanic chains crossed at that point. Such crossing would cause a tension of the crust of the earth, which might cause great fissures. If water were to search out those fissures and reach the great molten mass below it is not hard to imagine what the result would be. There are two classes of volcanoes—those which have explosive eruptions, like Vesuvius and Krakatoa, and this latest one, and those of no explosive nature, like Mauna Loa and Kilauea, in Hawaii, which boil up and flow over. It is the explosive eruption which brings widespread destruction, and it is astonishing to learn of the tremendous power one of those eruptions unleashes."

Professor John Milne, of London, the highest authority in the world on volcanic explosions, classifies eruptions into two grades: Those that build up very slowly. Those that destroy most rapidly.

"The latter are the most dangerous to human life and the physical face of a country. Eruptions that build up mountains are periodical wellings over of molten lava, comparatively harmless. But in this building up, which may cover a period

of centuries, natural volcanic vents are closed up and gases and blazing fires accumulate beneath that must eventually find the air. Sooner or later they must burst forth, and then the terrific disasters of the second class take place. It is the same cause that makes a boiler burst."

Professor Milne was asked after Krakatoa's performance:

"Is it likely that there are volcanoes in the world at present that have been quiet for a long time but will one day or another blow their heads off?"

"It is almost certain there are."

"Some in Europe?"

"Many in Europe."

"Some in the United States?"

"Undoubtedly."

Mount Pelee of Martinique has verified the eminent authority's word.

Professor Angelo Heilprin, of Philadelphia, the eminent geologist and authority on volcanology, declares there is danger that all the West Indian reef islands will collapse and sink into the sea from the effects of the volcanic disturbances now in progress. More than that, he says, the Nicaraguan canal route is in danger because it is in the eruption zone.

"In my opinion the volcano eruptions are not the only things to be feared," he continued. "It is altogether likely that the volcanic disturbance now going on may result in the collapse of the islands whose peaks spring into activity. The constant eruptions of rock, lava, and ashes, you must know, mean that a hole, as it were, is being made in the bosom of the earth. When this hole reaches a great size, that which is above will be without support, and then subsidence must follow. The volcanoes of Martinique and St. Vincent, and of the neighboring islands of the Caribbean, are situated in a region of extreme weakness of the earth's crust, which has its parallel in the Mediterranean basin on the opposite side of the Atlantic. This American region of weakness extends westward

from the Lesser Antilles across the Gulf of Mexico into Mexico proper, where are located some of the loftiest volcanoes of the globe, Popocatepetl and Orizaba, both now in somnolent condition, and including the more westerly volcano of Colima, which has been almost continuously in eruption for ten years.

"This same region of weakness includes nearly the whole of Central America. Volcanoes in Costa Rica, Nicaragua, and Guatemala have been repeatedly active, some almost to the present time, many with destructive effect, and it should be no surprise to have some of them burst out with the same vigor and intensity as Mount Pelee or the Soufriere."

The National Geographic Society sent three geographers to make a special study of the eruptions in Martinique and St. Vincent: Professor Robert T. Hill of the United States Geological Survey; Professor Israel C. Russell of Ann Arbor, Mich., and C. E. Borchgrevink, the noted Antarctic explorer.

Professor Hovey, after a careful examination of the desolated areas in Martinique and St. Vincent, related important scientific phases of the great eruptions. Speaking first of the work of his companions and himself in St. Vincent, he said:

"Collection of data concerning the eruption of La Soufriere was immediately begun. The history of the eruption is practically that of the disturbance of 1851. Earthquakes occurred here about a year ago, and have occurred at intervals at various places in the West Indies and adjacent regions ever since. At least one resident of Kingstown—F. W. Griffiths—several months ago predicted that La Soufriere would soon break out.

"Finally, on the day of the great eruption, a vast column of volcanic dust, cinders, blocks of lava and asphyxiating gases rose thousands of feet into the air, spreading in all directions. A large portion of this, having reached the upper current, was carried eastward. This, falling, was again divided, and the cinders and deadly gases were swept by the lower winds back upon the eastward side of the mountain. The

wrecked houses show this, the windows on the side toward the crater being unaffected, while those on the farther side were wrecked by the back draught up the mountain.

"There was no wind on the morning of the great outburst, a fact which facilitated the devastation of the country. The hot, asphyxiating gases rolled out of the crater, and many were scorched and suffocated. Hot mud falling from the cloud above stuck to the flesh of the unfortunate victims, causing bad wounds. Great blocks of stone were thrown out of the eastern side of the crater, which could be distinctly seen at a distance of four miles."

Concerning the eruption of Mount Pelee, Mr. Hovey said: "An increase in the temperature of the lake in the old crater of Pelee was observed by visiting geologists as much as two years ago, while hot springs had long been known to exist near the western base of the mountain and four miles north of St. Pierre. The residents of Martinique, however, all considered the volcano extinct in spite of the eruption fifty-one years ago. The ground around the crater of Pelee was reported in 1901 to consist of hot mud, showing that the increase of temperature observed eighteen months earlier had continued.

"Soon after the middle of April, this year, manifestations of renewed activity were more pronounced. Ashes began to fall in St. Pierre and heavy detonations were heard. The houses of the city shook frequently, suffocating gases filled the air at intervals, and the warning phenomena increased until they became very alarming.

"The Guerin sugar factory, on Riviere Blanche, was overwhelmed on May 5 by a stream of liquid mud, which rushed down the west slope of the mountain with fearful rapidity. The pretty lake which occupied the crater of 1851, on the southwest slope of the cone, about a mile from the extreme summit and a thousand feet below it, had disappeared, and a new crater had formed on its site, spreading death and destruction on all sides. Three days later the eruption took place and

devastated the city of St. Pierre, wiping out the inhabitants and changing a garden spot to a desert.

"A vast column of steam and ashes rose to a height of four miles above the sea, as measured by the French artillerymen at Fort de France. After this eruption the mountain quieted somewhat, but burst forth again at 5:15 o'clock on the morning of May 20. This explosion was more violent than that which destroyed St. Pierre.

"On this occasion the volume of steam and ashes rose to a height of seven miles, according to measurements made by Lieutenant McCormick. An examination of the stones which fell at Fort de France showed them to be of a variety of lava called hornblende and andesite. They were bits of the old lava forming a part of the cone. There was no pumice shown to me, but the dust and lapilli all seemed to be composed of comminuted old rock.

"It is evident that the tornado of suffocating gas which wrecked the buildings asphyxiated the people, then started fire, completing the ruin. This accords with the statement which has been made that asphyxiation of the inhabitants preceded the burning of the city. The gas being sulphureted hydrogen, was ignited by lightning or the fires in the city. The same tornado drove the ships in the roadstead to the bottom of the sea or burned them before they could escape.

"Mud was formed in two ways—by the mixture in the atmosphere of dust and condensed steam and by cloudbursts on the upper dust-covered slopes of the cone washing down vast quantities of fine light dust. No flow of lava apparently has attended the eruption as yet, the purely explosive eruptions thus far bringing no molten matter to the surface. The great emission of suffocating gas and the streams of mud are among the new features which Pelee has added to the scientific knowledge of volcanoes."

Professor Hill was the first man who set foot in the area of craters, fissures, and fumaroles, and, because of his high

position as a scientist, his story was valuable. He reported as follows: "There were three well marked zones: First, a center of annihilation, in which all life, vegetable and animal, was utterly destroyed—the greater northern part of St. Pierre was in this zone; second, a zone of singeing, blistering flame, which also was fatal to all life, killing all men and animals, burning the leaves on the trees, and scorching, but not utterly destroying, the trees themselves; third, a large outer, non-destructive zone of ashes, wherein some vegetation was injured.

"The focus of annihilation was the new crater midway between the sea and the peak of Mount Pelee where now exists a new area of active volcanism, with hundreds of fumaroles or miniature volcanoes. The new crater is now vomiting black, hot mud, which is falling into the sea. Both craters, the old and the new, are active.

"The destruction of St. Pierre was due to the new crater. The explosion had great superficial force, acting in radial directions, as is evidenced by the dismounting and carrying for yards the guns in the battery on the hill south of St. Pierre and the statue of the Virgin in the same locality, and also by the condition of the ruined houses in St. Pierre. According to the testimony of some persons there was an accompanying flame. Others think the incandescent cinders and the force of their ejection were sufficient to cause the destruction. This must be investigated. I am now following the nature of this."

Professor Hill started on Monday, May 26, to visit the vicinity of Mount Pelee, and returned to Fort de France Wednesday morning, nearly exhausted. Professor Hill was near the ruins of St. Pierre on Monday night during the series of explosions from Mount Pelee, and was able to describe the volcanic eruption from close observation. Speaking personally of his expedition he said: "My attempt to examine the crater of Mount Pelee has been futile. I succeeded, however, in getting close to Morne Rouge. At seven o'clock on Monday night I

witnessed, from a point near the ruins of St. Pierre, a frightful explosion from Mount Pelee and noted the accompanying phenomena. While these eruptions continue, no sane man should attempt to ascend to the crater of the volcano. Following the salvos of detonations from the mountain, gigantic mushroom-shaped columns of smoke and cinders ascended into the clear, starlit sky, and then spread in a vast black sheet to the south and directly over my head. Through this sheet, which extended a distance of ten miles from the crater, vivid and awful lightning-like bolts flashed with alarming frequency. They followed distinct paths of ignition, but were different from lightning in that the bolts were horizontal and not perpendicular. This is indisputable evidence of the explosive oxidation of the gases after they left the crater. This is a most important observation and explains in part the awful catastrophe. This phenomenon is entirely new in volcanic history.

"I took many photographs, but do not hesitate to acknowledge that I was terrified. But I was not the only person so frightened. Two newspaper correspondents, who were close to Morne Rouge some hours before me, became scared, ran three miles down the mountain, and hastened into Fort de France. The people on the north end of the island are terrified and are fleeing with their cattle and effects. I spent Tuesday night in a house at Deux Choux with a crowd of 200 frightened refugees.

"Nearly all the phenomena of these volcanic outbreaks are new to science, and many of them have not yet been explained. The volcano is still intensely active, and I cannot make any predictions as to what it will do."

CHAPTER XXIV

TERRIBLE VOLCANIC DISASTERS OF THE PAST

Destruction of Sodom and Gomorrah and the Other Cities of the Plain—The Bible Account a Graphic Description of the Event—Ancient Writers Tell of Earthquakes and Volcanoes of Antiquity—Discovery of Buried Cities of which no Records Remain—Formation of the Dead Sea—The Valley of the Jordan and Its Physical Characteristics.

IN the history of earthquakes, nothing is more remarkable than the extreme fewness of those recorded before the beginning of the Christian era, in comparison with those that have been registered since that time. This may be partly accounted for by the fact that before the birth of Christ, there was but a small portion of the habitable surface of the globe known to those who were capable of handing down a record of natural events. The vast increase in the number of earthquakes in recent times is, therefore, undoubtedly due to the enlargement of our knowledge of the earth's surface, and to the greater freedom of communication now subsisting among mankind.

Earthquakes might have been as frequent throughout the entire globe in ancient times as now; but the writers of the Bible, and the historians of Greece and Rome might have known nothing of their occurrence. Even at the present time, an earthquake might happen in Central Africa, or in Central Asia, of which we would never hear, and the recollection of which might die out among the natives in a few generations. In countries, too, which are thinly inhabited, and where

there are no large cities to be overthrown, even great earthquakes might happen almost unheeded. The few inhabitants might be awe-struck at the time; but should they sustain no personal harm, the violence of the commotion and the intensity of their terror would soon fade from their memories.

Dr. Daubeny, in his work on volcanoes, cites an example of this complete oblivion, even when the event must have occurred not far from the ancient center of civilization. The town of Lessa, between Rome and Naples, and not far from Gaeta, stands on an eminence composed of volcanic rocks. In digging the foundations for a house at this place some years ago, there were discovered, many feet beneath the present surface, a chamber with antique frescoes and the remains of an amphitheater. Yet there is not only no existing account of the destruction of a town on this site, but not even a tradition of any volcanic eruption in the neighborhood.

The earthquake which destroyed Sodom and Gomorrah is not only the oldest on record, but one of the most remarkable. It was accompanied by a volcanic eruption, it upheaved a district of several hundred square leagues, and caused the subsidence of a tract of land not less extensive, altering the whole water system and the levels of the soil. The south of Palestine contained a splendid valley dotted with forests and flourishing cities. This was the valley of Siddim, in which reigned the confederate sovereigns of Sodom, Gomorrah, Adniah, Zeboiim and Zoar. They had joined forces to resist the king of the Elamites, and they had just lost the decisive battle of the campaign when the catastrophe which destroyed the five cities and spread desolation in the flourishing valley took place. As the sun arose, the ground trembled and opened, red-hot stones and burning cinders, which fell like a storm of fire upon the surrounding country, being emitted from the yawning chasm.

In a few words, the Bible relates the dread event:

"And when the morning arose, the angels hastened Lot,

saying, Arise, take thy wife, and thy two daughters, which are here, lest thou be consumed in the iniquity of the city.

"And while he lingered, the men laid hold upon his hand, and upon the hand of his wife, and upon the hand of his two daughters, the Lord being merciful unto him, and they brought him forth and set him without the city.

"And it came to pass, when they had brought them forth abroad, that he said, Escape for thy life; look not behind thee, neither stay thou in all the plain; escape to the mountain lest thou be consumed.

"And Lot said unto them, Oh, not so, my Lord, behold now, thy servant hath found grace in thy sight, and thou hast magnified thy mercy, which thou hast shewed unto me in saving my life; and I cannot escape to the mountain, lest some evil take me, and I die. Behold now, this city is near to flee unto, and it is a little one: Oh, let me escape thither, (is it not a little one?) and my soul shall live.

"And he said unto him, See, I have accepted thee concerning this thing also, that I will not overthrow this city, for which thou hast spoken. Haste thee, escape thither; for I cannot do anything until thou be come thither.

"Therefore the name of the city was called Zoar. The sun was risen upon the earth when Lot entered into Zoar.

"Then the Lord rained upon Sodom and upon Gomorrah brimstone and fire from the Lord out of heaven. And he overthrew those cities, and all the plain, and all the inhabitants of the cities, and that which grew upon the ground.

"But his wife looked back from behind him, and she became a pillar of salt.

"And Abraham got up early in the morning to the place where he stood before the Lord, and he looked toward Sodom and Gomorrah, and toward all the land of the plain, and beheld, and lo, the smoke of the city went up as the smoke of a furnace."

Nothing could be more succinct or terse than this descrip-

tion of the catastrophe. This was a sudden volcanic eruption like that which destroyed in one night the cities of Pompeii and Herculaneum. At the time of the convulsion in Palestine while clouds of ashes were emitted from the yawning abyss and fell in fiery showers upon the ground, a vast tract of country, comprising the five cities and some land to the south of them, was violently shaken and overturned.

Of the valleys watered by the Jordan, that of Siddim was the largest and the most populous. All the southern part of this valley, with its woods, its cultivated fields, and its broad river, was upheaved. While upon the other side the plain subsided, and for a distance of a hundred leagues was transformed into a vast cavern of unknown depth. Upon that day the waters of the Jordan, suddenly arrested by the upheaval of the soil lower down the stream, must have flowed rapidly back toward their source, again to flow not less impetuously along their accustomed incline, and to fall into the abyss created by the subsidence of the valley and the break-up of the bed of the stream.

When, after the disaster, the inhabitants of neighboring regions came to visit the scene of it, they found the whole aspect of the district altered. The valley of Siddim had ceased to exist, and an immense sheet of water covered the space which it once occupied. Beyond this vast reservoir, to the south, the Jordan, which formerly fertilized the country as far as the Red Sea, had also disappeared. The whole country was covered with lava, ashes and salt; all the cultivated fields, the hamlets and villages, had been involved in the cataclysm.

The record of this great catastrophe is preserved not only by Scripture, but by the living and spoken traditions of the East, all the legends of Syria, as well as ancient historians like Tacitus and Strabo, relating how Lake Asphaltite was formed during the terrible shock and how opulent cities were swal-

lowed up in the abyss or destroyed by fire from out of the earth.

But even if popular traditions had been forgotten, and if the writings of ancient authors had been lost, the very aspect of the country would suffice to show that it had suffered from some terrible subterranean convulsion. As it was upon the morrow of the catastrophe itself, so it has remained with its calcined rocks, its blocks of salt, its masses of black lava, its rough ravines, its sulphurous springs, its boiling waters, its bituminous marshes, its riven mountains, and its vast Lake Asphaltite, which is the Dead Sea.

This sea, the depth of which has never been sounded, evokes by its origin and its mysterious aspect, the dolorous image of death. Situated about 690 feet below the level of the ocean, in the depression of the soil caused by the earthquake, its waters extend over an area of a hundred square leagues to the foot of the salt mountains and basaltic rocks which encircle it. One can detect no trace of vegetation or animal life; not a sound is heard upon its shores, impregnated with salt and bitumen; the birds avoid flying over its dreary surface from which emanate deadly effluvia, and nothing can exist in its bitter, salt, oily, and heavy waters. Not a breeze ever stirs the surface of this silent sea, nothing moves therein save the thick load of asphalt which now and again rises from the bottom to the surface and floats lazily on to the desolate strand.

The Jordan has remained what it was in ancient times, the blessed stream, the vivifying artery of Palestine. Taking their source in the spotless snows and pure springs of Mount Hermon, its waters have retained the azure hues of the sky and the clearness of crystal. Before the catastrophe, the Jordan, after having traversed and fertilized Palestine, found its way into the Gulf of Arabia, but now, as upon the morrow of the shock which broke up its bed, its waters are lost in the somber abyss of the Dead Sea.

The Bible mentions an earthquake in Palestine in the reign of Ahab, and one in the reign of Uzziah, which rent the temple. The latter was an event so great that the chroniclers of the time used it in dating occurrences, and Amos speaks of what happened "two years before the earthquake."

The same convulsions of nature are mentioned many other times in the Bible, in connection with prophecy, revelation and the crucifixion.

Nearly all writings about earthquakes prior to the last century tended to cultivate superstitious notions respecting them. Even Pliny, Herodotus, Livy, and the other classic writers, were quite ignorant of the true causes, and mythology entered into their speculations. In later times the investigation has become a science. The Chinese were pioneers in this direction, having appointed an Imperial Commission in A.D. 136 to inquire into the subject. It is to be doubted, however, if what they reported would be considered as of much scientific value to-day.

By this time it is estimated that in the libraries of the world are more than 2,000 works treating of earth-motions. The phenomena are taken quite out of the realm of superstition. By means of delicate instruments of various kinds, called seismometers, the direction of earth-movements can be traced, and their force gauged, while by means of a simple magnet with a metal piece attached to it, an earthquake can be foretold. These instruments tell us that scarcely a day passes without an earthquake in some portion of the globe. The internal causes of these manifestations are ever active, whatever the causes may be.

CHAPTER XXV

VESUVIUS AND THE DESTRUCTION OF POMPEII

Most Famous Volcanic Eruption in History—Roman Cities Overwhelmed—Scenes of Horror Described by Pliny, the Great Classic Writer, an Eye-Witness of the Disaster—Buried in Ashes and Lava—The Stricken Towns Preserved for Centuries and Excavated in Modern Times as a Wonderful Museum of the Life of 1800 Years Ago.

MOUNT VESUVIUS, the world-famed volcano of southern Italy, seen as it is from every part of the city of Naples and its neighborhood, forms the most prominent feature of that portion of the frightful and romantic Campanian coast. For many centuries it has been an object of the greatest interest, and certainly not the least of the many attractions of one of the most notable cities of Europe. Naples, with its bay constitutes as grand a panorama as any to be seen in the world. The mountain is a link in the historical chain which binds us to the past, which takes us back to the days of the Roman Empire. Before the days of Titus it seems to have been unknown as a volcano, and its summit is supposed to have been crowned by a temple of Jupiter.

In the year 25 A.D., Strabo, an eminent historian of the time, wrote: "About these places rises Vesuvius, well cultivated and inhabited all round, except at its top, which is for the most part level, and entirely barren, ashy to the view, displaying cavernous hollows in cineritious rocks, which look as if they had been eaten by fire; so that we may suppose this spot to have been a volcano formerly, with burning craters, now extinguished for want of fuel."

Though Strabo was a great historian, it is evident that he

was not a prophet. The subsequent history of Vesuvius has shown that at varying periods the mountain has burst forth in great eruptive activity.

Herculaneum was a city of great antiquity, its origin being ascribed by Greek tradition to Hercules, the celebrated hero of the mythological age of Greece; but it is not certain that it was actually founded by a Greek colony, though in the time of Sulla, who lived a hundred years before Christ, it was a municipal and fortified town. Situated on an elevated ground between two rivers, its position could not but be considered important, its port Retina being one of the best on the coast of Campania. Many villas of great splendor were owned in the neighborhood by Roman patricians; Servilia, the mother of Brutus, and the favorite mistress of Julius Caesar, resided here on an estate which he had given to her.

Pompeii, too, was a very ancient city, and was probably founded by a Grecian colony; for what is considered its oldets building, a Greek temple, from its similarity to the Praestum temples, fixes the date of construction with some certainty at about 650 B.C. This temple, by common consent, is stated to have been dedicated to Hercules, who, according to Solonus, landed at this spot with a procession of oxen.

The situation of Pompeii possessed many local advantages. Upon the verge of the sea, at the mouth of the Sarno, with a fertile plain behind, like many an ancient Italian town, it united the conveniences of commerce with the security of a military station. According to Strabo, Pompeii was first occupied by the Oscans, subsequently by the Tyrrhenians and Pelasgians, and afterwards by the Samnites, in whose hands it continued until it came into the possession of the Romans. The delightful position of the city, the genial climate of the locality, and its many attractions, caused it to become a favorite retreat of the wealthier Romans, who purchased estates in the neighborhood; Cicero, among others, having a villa there.

In A.D. 63, during the reign of Nero, an earthquake overthrew a considerable portion of Pompeii and Herculaneum. Scarcely had the inhabitants in some measure recovered from their alarm, and begun to rebuild their shattered edifices, when a still more terrible catastrophe occurred, and the first recorded eruption of Vesuvius, on the 23d of August, A.D. 79, completed the ruin of the two cities.

Of this event we fortunately possess a singularly graphic description by one who was not only an eye-witness, but well qualified to observe and record its phenomena—Pliny, the Younger, whose narrative is contained in two letters addressed to the historian Tacitus. These letters run as follows:

"Your request," he writes, "that I would send you an account of my uncle's death, in order to transmit a more exact relation of it to posterity, merits my acknowledgements; for should the calamity be celebrated by your pen, its memory, I feel assured, will be rendered imperishable. He was at that time, with the fleet under his command, at Misenum. On the 24th of August, about one in the afternoon, my mother desired him to observe a cloud which seemed of unusual shape and dimensions. He had just returned from taking the benefit of the sun, and after a cold water bath and a slight repast, had retired to his study. He immediately arose, and proceeded to a rising ground, from whence he might more distinctly mark this very uncommon appearance.

"At that distance it could not be clearly perceived from what mountain the cloud issued, but it was afterward ascertained to proceed from Mount Vesuvius. I cannot better describe its figure than by comparing it to that of a pine tree, for it shot up to a great height like a trunk, and extended itself at the top into a kind of branches; occasioned, I imagine, either by a sudden gust of air that impelled it, the force of which decreased as it advanced upward, or by the expansion of the cloud itself, when pressed back again by its own weight. Sometimes it appeared bright, and sometimes dark and

spotted, as it became more or less impregnated with earth and cinders. This extraordinary phenomenon excited my uncle's philosophical curiosity to inquire into it more closely. He ordered a light vessel to be got ready for him, and invited me to accompany him if I pleased. I replied that I would rather continue my studies.

"As he was leaving the house, a note was brought to him from Rectina, the wife of Bassus, who was in the utmost alarm at the imminent peril which threatened her; for her villa being situated at the foot of Mount Vesuvius, the only mode of escape was by the sea. She earnestly entreated him, therefore, to hasten to her assistance. He accordingly changed his first design, and what he began out of curiosity, now continued out of heroism. Ordering the galleys to put to sea, he went on board, with an intention of assisting not only Rectina, but several others, for the villas are very numerous along that beautiful shore. Hastening to the very place which other people were abandoning in terror, he steered directly toward the point of danger, and with so much composure of mind that he was able to make and to dictate his observations on the changes and aspects of that dreadful scene.

"He was now so nigh the mountain that the cinders, which grew thicker and hotter the nearer he approached, fell into the vessel, together with pumice-stones and black pieces of burning rock; and now the sudden ebb of the sea, and vast fragments rolling from the mountain, obstructed their nearer approach to the shore. Pausing to consider whether he should turn back again, to which he was advised by his pilot, he exclaimed, 'Fortune befriends the brave: carry me to Pomponianus.'

"Pomponianus was then at Stabiae, separated by a gulf which the sea, after several windings, forms upon the shore. He had already sent his baggage on board; for though not at that time in actual danger, yet being within prospect of it, he was determined, if it drew nearer, to put to sea as soon as the

wind should change. The wind was favorable, however, for carrying my uncle to Pomponianus, whom he found in the greatest consternation. He embraced him tenderly, encouraging and counselling him to keep up his spirits; and still better to dissipate his alarm, he ordered, with an air of unconcern, the baths to be got ready. After having bathed, he sat down to supper with great cheerfulness, or, what was equally courageous, with all the semblance of it.

"Meanwhile, the eruption from Mount Vesuvius broke forth in several places with great violence, and the darkness of the night contributed to render it still more visible and dreadful. But my uncle, to soothe the anxieties of his friend, declared it was only the burning of the villages, which the country people had abandoned to the flames. After this, he retired to rest; and it is certain he was so little discomposed as to fall into a deep sleep; for being somewhat corpulent, and breathing hard, those who attended without actually heard him snore.

"The court which led to his apartment being nearly filled with stones and ashes, it would have been impossible for him, had he continued there longer, to have made his way out; it was thought proper, therefore, to awaken him. He got up and joined Pomponianus and the rest of his company who were not unconcerned enough to think of going to bed. They consulted together which course would be the more prudent: to trust to the houses, which now shook from side to side with frequent and violent concussions; or to escape to the open country, where the calcined stones and cinders fell in such quantities, as notwithstanding their lightness, to threaten destruction. In this dilemma they decided on the open country, as offering the greater chance of safety; a resolution which, while the rest of the company hastily adopted it through their fears, my uncle embraced only after cool and deliberate consideration. Then they went forth, having pillows tied upon their heads with napkins; and this was their

sole defence against the storm of stones that fell around them.

"It was now day everywhere else, but there a deeper darkness prevailed than in the obscurest night, though it was in some degree dissipated by torches and lights of various kinds. They thought proper to go down further upon the shore, to ascertain whether they might safely put out to sea; but found the waves still extremely high and boisterous. There my uncle, having drunk a draught or two of cold water, flung himself down upon a cloth which was spread for him, when immediately the flames and their precurser, a strong stench of sulphur, dispersed the rest of the company, and compelled him to rise. He raised himself with the assistance of two of the servants, but instantly fell down dead; suffocated, I imagine by some gross and noxious vapor. As soon as it was light again, which was not until the third day after this melancholy accident, his body was found entire, and free from any sign of violence, exactly in the same posture that he fell, so that he looked more like one asleep than dead."

In a second letter to Tacitus, Pliny in relating his own experiences, says:

"Day was rapidly breaking, but the light was exceedingly faint and languid; the buildings all around us tottered; and though we stood upon open ground, yet, as the area was narrow and confined, we could not remain without certain and formidable peril, and we therefore resolved to quit the town. The people followed us in a panic of alarm, and, as to a mind distracted with terror every suggestion seems more prudent than its own, pressed in great crowds about us in our way out.

"As soon as we had reached a convenient distance from the houses, we stood still, in the midst of a perilous and most dreadful scene. The chariots which we had ordered to be drawn out oscillated so violently, though upon level ground, that we could not keep them steady, even by supporting them with large stones. The sea seemed to roll back upon itself,

and to be driven from its strands by the earth's convulsive throes; it is certain, at least, that the shore was considerably enlarged, and that several marine animals were left upon it. On the other side, a black and terrible cloud, bursting with an igneous serpentine vapor, darted out a long train of fire, resembling, but much larger than the flashes of lightning.

"Soon after the black cloud seemed to descend and enshroud the whole ocean; as, in truth, it entirely concealed the island of Caprea and the headland of Misenum. The ashes now began to fall upon us, though in no considerable quantity. Turning my head, I perceived behind us a dense smoke, which came rolling in our track like a torrent. I proposed, while there was yet some light, to diverge from the highroad, lest my mother should be crushed to death in the dark by the crowd that followed us. Scarcely had we stepped aside when darkness overspread us; not the darkness of a cloudy night, or when there is no moon, but that of a chamber which is close shut, with all the lights extinct.

"And then nothing could be heard but the shrieks of women, the cries of children, and the exclamations of men. Some called aloud for their little ones, others for their parents, others for their husbands, being only able to distinguish persons by their voices; this man lamented his own fate, that man the fate of his famly; not a few wished to die out of very fear of death; many lifted their hands to the gods; but most imagined the last eternal night was come, which should destroy the world and the gods together.

"At length, a glimmer of light appeared, which we imagined to be rather the foretoken of an approaching burst of flames, as in truth it was, than the return of day. The fire, however, having fallen at a distance from us, we were again immersed in dense darkness, and a heavy shower of ashes fell upon us, which we were compelled at times to shake off—otherwise we should have been crushed and buried in the heap.

"After a while, this dreadful darkness gradually disap-

peared like a cloud of smoke; the actual day returned, and with it the sun, though very faintly, and as when an eclipse is coming on. Every object that presented itself to our eyes (which were extremely weakened) seemed changed, being covered with a crust of white ashes, like a deep layer of snow. We returned to Misenum, where we refreshed ourselves as well as we could, and passed an anxious night between hope and fear, though, indeed, with a much larger share of the latter; for the earthquake still continued, while several excited individuals ran up and down, augmenting their own and their friends' calamities by terrible predictions."

The graphic accounts of Pliny the Younger have been confirmed in every respect by scientific examination of the buried cities. The eruption was terrible in all its circumstances—the rolling mud, the cloud of darkness, the flashes of electric fire, the shaking earth—but yet more terrible in its novelty of character and the seemingly wide range of its influence. These combined causes would appear to have exercised a fatal effect on the Pompeians, and but for them nearly all might have escaped. Thus, the amphitheatre was crowded when the catastrophe occurred, but only two or three skeletons have been found in it, which probably were those of gladiators already killed or wounded. The bold, the prompt, and the energetic saved themselves by immediate flight; those who lingered through love or avarice, supine indifference, or palsying fear, perished.

Many sought refuge in the lower rooms or underground cellars of their houses, but there the steaming mud pursued and overtook them. Had it been otherwise, they must have died of hunger or suffocation, as all avenues of egress were absolutely blocked up.

It is impossible to exaggerate the horrors of the last day of the doomed city. The rumbling of the earth beneath; the dense obscurity and murky shadow of the heaven above; the long, heavy roll of the convulsed sea; the strident noise of the

vapors and gases escaping from the mountain-crater; the shifting electric lights, crimson, emerald green, lurid yellow, azure, blood red, which at intervals relieved the blackness, only to make it ghastlier than before; the hot, hissing showers which descended like a rain of fire; the clash and clang of meeting rocks and riven stones; the burning houses and flaming vineyards; the hurrying fugitives, with wan faces and straining eyeballs, calling on those they loved to follow them; the ashes, and cinders, and boiling mud, driving through the darkened streets, and pouring into the public places; above all, that fine, impalpable, but choking dust which entered everywhere, penetrating even to the lowest cellar, and against which human skill could devise no effectual protection; all these things must have combined into a whole of such unusual and such awful terror that the imagination cannot adequately realize it. The stoutest heart was appalled; the best-balanced mind lost its composure. The stern Roman soldier stood rigidly at his post, content to die if discipline required it, but even his iron nerves quailed at the death and destruction around him. Many lost their reason, and wandered through the city, gibbering and shrieking lunatics. And none, we may be sure, who survived the peril, ever forgot the sights and scenes they had witnessed on that day of doom.

Three days and nights were thus endured with all the anguish of suspense and uncertainty. On the fourth day the darkness, by degrees, began to clear away. The day appeared, the sun shining forth; but all nature seemed changed. Buried beneath the lava lay temple and circus, the tribunal, the shrine, the frescoed wall, the bright mosaic floor; but there was neither life nor motion in either city of the dead, though the sea which once bore their argosies still shimmered in the sunshine, and the mountain which accomplished their destruction still breathed forth smoke and fire.

The scene was changed; all was over; smoke and vapor and showers had ceased, and Vesuvius had returned to its nor-

mal slumber. Pompeii and Herculaneum were no more. In their place was a desolated plain, with no monuments visible, no house to be seen—nothing but a great surface of white ashes, which hardened and petrified, and finally disintegrated into soil upon which, years after, might be seen the fruitful vine, the waving corn, and wild flowers in all their loveliness and beauty, hiding the hideous tragedy of a bygone age.

It was about the middle of the eighteenth century that systematic excavations in the ashes that covered Pompeii began. Since that time the work has been slow, though continuous, and great progress has been made in disinterring the buried city. To-day it is a municipal museum of the Roman Empire as it was 1,800 years ago. The architecture is almost unmarred; the colors of decorated tiles on the walls are still bright; the wheel marks are fresh looking; the picture of domestic life as it was is complete, except for the people who were destroyed or driven from the city. No other place in all the world so completely portrays that period of the past to us as does Pompeii, overwhelmed by Vesuvius, hidden for centuries, and now once more in view to the world to-day.

CHAPTER XXVI

MOUNT ÆTNA AND THE SICILIAN HORRORS

A Volcano with a Record of Twenty-five Centuries—Seventy-eight Recorded Eruptions — Three Hundred Thousand Inhabitants Dwelling on the Slopes of the Mountain and in the Valleys at its Base—Stories of Earthquake Shock and Lava Flows—Tales of Destruction—Described by Ancient and Modern Writers and Eye-witnesses.

MOUNT ÆTNA, one of the most celebrated volcanoes in the world, is situated on the eastern sea-board of Sicily. The ancient poets often alluded to it, and by some it was feigned to be the prison of the giant Euceladus or Typhon, by others the forge of Hephæstus. The flames proceeded from the breath of Euceladus, the thunderous noises of the mountain were his groans, and when he turned upon his side, earthquakes shook the island. Pindar in his first Pythian ode for Hiero of Ætna, winner in the chariot race in 474 B.C., exclaims: — He (Typhon) is fast bound by a pillar of the sky, even by snowy Ætna, nursing the whole year's length her dazzling snow. Whereout pure springs of unapproachable fire are vomited from the inmost depth: in the daytime the lava streams pour forth a lurid rush of smoke, but in the darkness a red rolling flame sweepeth rocks with uproar to the wide, deep sea. Æschylus (525-456 B.C.) speaks also of the "mighty Typhon." Thucydides (471-402 B.C.) alludes in the last lines of his third book to three early eruptions of the mountain. Many other early writers speak of Ætna, among them Theocritus, Virgil, Ovid, Livy, Seneca, Lucan, Strabo, and Lucilius Junior. While the poets on the

one hand had invested Ætna with various supernatural attributes, and had made it the prison of a chained giant, and the workshop of a god, Lucretius and others endeavored to show that the eruptions and other phenomena of the mountain could be explained by the ordinary operations of nature.

If we pass to more modern times we find mention of Ætna by Dante, Petrarch, Cardinal Bembo, and other middle age writers. In 1541 Fazello wrote a brief history of the mountain, and described an ascent. In 1591 Antonio Filoteo, who was born on Ætna, published a work in Venice, in which he describes an eruption which he witnessed in 1536. He asserts that the mountain was then, as now, divided into three "regions"—the first very arid, rugged, uneven, and full of broken rocks; the second covered with forests; and the third cultivated in the ordinary manner.

The great eruption of 1669 was described at length by the naturalist Borelli in the year of its occurrence, and a brief account of it was given by the Earl of Winchelsea, English ambassador at Constantinople, who was returning home by way of the Straits of Messina at the time. As the eruption of 1669 was the most considerable one of modern times, it attracted a great deal of attention, and was described by several eye-witnesses.

The height of Ætna has been often determined. The earlier writers had very exaggerated notions on the subject, and a height of three and even four miles has been assigned. It must be borne in mind that the cone of a volcano is liable to variations in height at different periods, and a diminution of more than three hundred feet has occured during the course of a single eruption of Ætna, owing to the falling of the cone of cinders into the crater. During the last sixty years, however, the height of the mountain has been practically constant at ten thousand eight hundred and seventy-four feet.

There are two cities, Catania and Aci Reale, and sixty-

three towns or villages on Mount Ætna. It is far more thickly populated than any other part of Sicily or Italy. No less than 300,000 people live on the mountain.

A remarkable feature of Ætna is the large number of minor cones which are scattered over its sides. They look small in comparison with the great mass of the mountain, but in reality some of them are of large dimensions.

The best period for making the ascent of Ætna is between June and September, after the melting of the winter snows, and before the falling of the autumnal rains. In winter there are frequently nine or ten miles of snow stretching from the summit downward, the paths are obliterated, and the guides sometimes refuse to accompany travelers. Moreover, violent storms often rage in the upper regions of the mountain, and the wind acquires a force which it is difficult to withstand, and is at the same time piercingly cold.

A list of the eruptions of Ætna from the earliest times has been given by several writers. The first eruption within the historical period probably happened in the seventh century B.C.; the second occurred in the time of Pythagoras. The third eruption, which was in 477 B.C., is mentioned by Thucydides, and it must have been the same eruption to which Pindar and Æschylus allude. An eruption mentioned by Thucydides happened in the year 426 B.C. An outburst of lava took place from Monte di Moja, the most northerly of the minor cones of Ætna, in 396 B.C., and following the course of the river Acesines, now the Alcantara, entered the sea near the site of the Greek colony of Naxos (now Capo di Schiso). We have no record of any further eruption for 256 years, till the year 140 B.C. Six years later an eruption occurred, and the same authorities mention an eruption in the year 126 B.C. Four years later Katana was nearly destroyed by a new eruption. Another, of which we possess no details, occurred during the civil war between Cæsar and Pompey, 49 B.C. Livy speaks of an earthquake which took place in 43 B.C., shortly

before the death of Cæsar, which it was believed to portend. In 38 B.C. and 32 B.C. eruptions took place.

The next eruption of which we hear is that mentioned by Suetonius in his life of Caligula. This was in 40 A.D. An eruption occurred in 72 A.D., after which Ætna was quiescent for nearly two centuries, but in the year 253, in the reign of the Emperor Decius, a violent eruption lasting nine days is recorded. According to Carrera and Photius, an eruption occurred in the year 420. We now find no further record for nearly four hundred years. Geoffrey of Viterbo states that there was an eruption in 812, when Charlemagne was in Messina. After another long interval, in this case of more than three centuries and a half, the mountain again showed activity. In February, 1169, one of the most disastrous eruptions on record took place. A violent earthquake, which was felt as far as Reggio, destroyed Catania in the course of a few minutes, burying fifteen thousand people beneath the ruins. It was the vigil of the feast of St. Agatha, and the cathedral of Catania was crowded with people, who were all buried beneath the ruins, together with the bishops and forty-four Benedictine monks. The side of the cone of the great crater toward Taormina fell into the crater.

There was a great eruption from the eastern side of the mountain in 1181. Lava descended in the same vicinity in 1285. In 1329 Speziale was in Catania, and witnessed a very violent eruption, of which he has left us an account. On the evening of June 28th, about the hour of vespers, Ætna was strongly convulsed, terrible noises were emitted, and flames issued from the south side of the mountain. A new crater, Monte Lepre, opened above the rock of Munsarra, and emitted large quantities of dense black smoke. Soon after a torrent of lava poured from the crater, and red-hot masses of rock were projected into the air. Four years after the last eruption it is recorded by Silvaggio that a fresh outburst took place. A manuscript preserved in the archives of

the cathedral of Catania mentions an eruption which took place on August 6, 1371, which caused the destruction of numerous olive groves near the city. An eruption which lasted for twelve days commenced in November, 1408. A violent earthquake in 1444 caused the cone of the mountain to fall into the great crater. An eruption of short duration, of which we have no details, occurred in 1447; and after this Ætna was quiescent for eighty-nine years.

Cardinal Bembo and Fazzello mention an eruption which took place toward the close of the fifteenth century. In March, 1536, a quantity of lava issued from the great crater, and several new apertures opened near the summit of the mountain and emitted lava.

A year later, in May, 1537, a fresh outburst occurred. A number of new mouths were opened on the south slope near La Fontanelle, and a quantity of lava burst forth which flowed in the direction of Catania, destroying a part of Nicolosi, and St. Antonio. In four days the lava ran fifteen miles. The cone of the great crater suddenly fell in, so as to become level with the Piano del Lago. The height of the mountain was thus diminished by 320 feet. Three new craters opened in November, 1566, on the northeast slope of the mountain. In 1579, 1603, 1607, 1610, 1614, and 1619, unimportant eruptions occurred. In February, 1633, Nicolosi was partly destroyed by a violent earthquake, and in the following December, earthquakes became frequent around the mountain.

In 1646 a new mouth opened on the north-east side, and five years later several new mouths opened on the west side of the mountain and poured out vast volumes of lava which threatened to overwhelm Bronte. We have a more detailed account of the eruption of 1669 than any previous one. It was observed by many men of different nations, and there are a number of narratives regarding it. The eruption was in every respect one of the most terrible on record. On March 8th, the sun was obscured and a whirlwind blew over the face

of the mountain; at the same time earthquakes were felt, and they continued to increase in violence for three days, at the end of which Nicolosi was converted into a heap of ruins.

On the morning of the 11th a fissure nearly twelve miles in length opened in the side of the mountain, and extended from the Piano di St. Leo to Monte Frumento, a mile from the summit. The fissure was only six feet wide, but it seemed to be of unknown depth, and a bright light proceeded from it. Six mouths opened in a line with the principal fissure, and discharged vast volumes of smoke, accompanied by low bellowing, which could be heard forty miles off. Toward the close of the day a crater opened about a mile below the others, and ejected red-hot stones to a considerable distance, and afterward sand and ashes, which covered the country for a distance of sixty miles.

The new crater soon vomited forth a torrent of lava, which presented a front of two miles. It encircled Monpilieri, and afterward flowed toward Belpasso, a town of 8,000 inhabitants, which was speedily destroyed. Seven mouths of fire opened around the new crater, and in three days united with it, forming one large crater 800 feet in diameter. The torrent of lava had continued to flow, and it destroyed the town of Mascalucia on March 23d. On the same day the crater cast up great quantities of sand, ashes, and scoriae, and formed above itself the great double coned hill called Monti Rossi, from the red color of the ashes of which it is mainly composed. On the 25th very violent earthquakes occurred, and the cone of the great central crater was shaken down into the crater for the fifth time since the beginning of the first century A.D. The original current of lava had divided into three streams, one of which destroyed San Pietro, the second Camporotondo, and the third the lands about Mascalucia, and afterward the village of Misterbianco. Fourteen villages were afterward swept out of existence, and the lava made its way toward Catania. At Albanello, two miles from the city, it undermined a hill

covered with corn fields, and carried it forward a considerable distance; a vineyard was also seen floating on its fiery surface.

When the lava reached the walls of Catania, it accumulated without progression until it rose to the top of the wall, sixty feet in height, and it then fell over in a fiery cascade and overwhelmed a part of the city. Another portion of the same stream threw down 120 feet of the wall and carried death and destruction in its course. On April 23d the lava reached the sea, which it entered as a stream 1800 feet broad and forty feet deep. On reaching the sea the water, of course, began to boil violently, and clouds of steam arose, carrying with them particles of scoriae. The volume of lava emitted during this eruption amounted to many millions of cubic feet. Fewara considers that the length of the stream was at least fifteen miles, while its average width was between two and three miles, so that it covered at least forty square miles of surface.

For a few years after this terrible eruption Ætna was quiescent, but in 1682 a new mouth opened on the east side of the mountain, and lava issued from it and rushed down the precipices of the Val del Bue. Early in January, 1693, clouds of black smoke poured from the great crater, and loud noises resembling the discharge of artillery, were heard. A violent earthquake followed, and Catania was shaken to the ground, burying 18,000 of its inhabitants. It is said that in all fifty cities and towns were destroyed in Sicily, together with approximately 100,000 inhabitants.

The following year witnessed another eruption, but no serious disaster resulted. In March, 1702, three mouths opened in the Contrada del Trifaglietto, near the head of the Val del Bue. In 1723, 1732, 1735, 1744, and 1747, slight eruptions occurred. Early in the year 1775 Ætna began to show signs of disturbance; a great column of black smoke issued from the crater, from which forked lightning was frequently emitted. Loud detonations were heard and two streams of lava issued

from the crater. A new mouth opened near Rocca di Musarra in the Val del Bue, four miles from the summit, and a quantity of lava was ejected from it. An extraordinary flood of water descended from Val del Bue, carrying all before it, and strewing its path with large blocks. Recupero estimated the volume of water at 16,000,000 cubic feet, probably a greater amount than could be furnished by the sudden melting of all the winter's snow on the mountain. It formed a channel two miles broad, and in some places thirty-four feet deep, and it flowed at the rate of a mile in a minute and a half during the first twelve miles of its course. The flood was probably produced by the melting not only of the winter's snow, but also of older layers of ice, which were suddenly liquified by the permeation of hot steam and lava, and which had been previously preserved from melting by a deposit of sand and ashes, as in the case of the ancient glacier found near the summit of the mountain in 1828.

In November, 1758, a smart shock of earthquake caused the cone of the great crater to fall in, but no eruption followed. In 1759, 1763, 1766, and 1780, eruptions were noted, and on May 18, 1780, a fissure opened on the southwest side of the mountain and extended from the base of the great crater for seven miles, terminating in a new mouth from which a stream of lava eminated. This encountered the cone of Palmintelli in its course, and separated into two branches, each of which was about 4,000 feet wide. Other mouths opened later in the year, and emitted larger quantities of lava, while in 1781 and 1787 there were slight eruptions. Five years later a fresh outbreak occurred; earthquakes were prevalent, and vast volumes of smoke were carried out to sea, seeming to form a gigantic bridge between Sicily and Africa. A torrent of lava flowed toward Aderno, and a second flowed into the Val del Bue as far as Zuccolaro. A pit called La Cisterna, forty feet in diameter, opened in the Piano del Lago near the great cone, and ejected smoke and masses of old lava saturated with water.

Several mouths opened below the crater, and the country round about Zaffarana was desolated.

In 1797, 1798, 1799, 1800, 1802, 1805, and 1808 slight eruptions occurred. In March, 1809, no less than twenty-one mouths of fire opened between the summit of the mountain and Castiglione, and two years afterward more than thirty mouths opened in a line running eastward from the summit for five miles. They ejected jets of fire, accompanied by much smoke. In 1819 five new mouths of fire opened near the scene of the eruption of 1811; three of these united into one large crater, and poured forth a quantity of lava into the Val del Bue. The lava flowed until it reached a nearly perpendicular precipice at the head of the valley of Calanna, over which it fell in a cascade, and being hardened by its descent, it was forced against the sides of the tufaceous rock at the bottom, so as to produce an extraordinary amount of abrasion, accompanied by clouds of dust worn off by the friction. Mr. Scrope observed that the lava flowed at the rate of about three feet an hour nine months after its emission.

Eruptions occurred in 1831, 1832, 1838, and 1842. Near the end of the following year, fifteen mouths of fire opened near the crater of 1832, at a height of 7,000 feet above the sea. They began by discharging scoriae and sand, and afterward lava, which divided into three streams, the two outer of which soon came to a standstill, while the central stream continued to flow at the rapid rate of 180 feet a minute, the descent being an angle of 25°. The heat at a distance of 120 feet from the current was 90° F. A new crater opened just above Bronte, and discharged lava which threatened the town, but it fortunately encountered Monte Vittoria, and was diverted into another course. While a number of the inhabitants of Bronte were watching the progress of the lava, the front of the stream was suddenly blown out as by an explosion of gunpowder. In an instant red-hot masses were hurled in every direction, and a cloud of vapor enveloped everything. Thirty-

six persons were killed on the spot, and twenty survived but a few hours.

A very violent eruption, which lasted more than nine months, commenced on the 26th of August, 1852. It was first witnessed by a party of six English tourists, who were ascending the mountain from Nicolosi in order to witness the sun rise from the summit. As they approached the Casa Inglesi the crater commenced to give forth ashes and flames of fire. In a narrow defile they were met by a violent hurricane, which overthrew both the mules and the riders, and forced them toward the precipices of Val del Bue. They sheltered themselves beneath some masses of lava, when suddenly an earthquake shook the mountain, and the mules fled in terror. They returned on foot toward daylight to Nicolosi, fortunately without having sustained injury. In the course of the night many rifts opened in that part of Val del Bue called the Balzo di Trifaglietto, and a great fissure opened at the base of Giannicola Grande, and a crater was thrown up, from which for seventeen days showers of sand and scoriae were ejected.

During the next day a quantity of lava flowed down into the Val del Bue, branching off so that one stream flowed to the foot of Mount Finocchio, while the other flowed to Mount Calanna. The eruption continued with abated violence during the early months of 1853, and did not fully cease until May 27th. The entire mass of lava ejected is estimated to be equal to an area six miles long by two miles broad, with an average depth of about twelve feet.

In October, 1864, frequent shocks of earthquake were felt by the dwellers on Ætna. In January, 1865, clouds of smoke were emitted by the great crater, and roaring sounds were heard. On the night of the 30th a violent shock was felt on the northeast side of the mountain, and a mouth opened below Monte Frumento, from which lava was ejected. It flowed at the rate of about a mile a day, and ultimately divided into two streams. By March 10th the new mouths of fire had

increased to seven in number, and they were all situated along a line stretching down from the summit. The three upper craters gave forth loud detonations three or four times a minute. Since 1865, there have been occasional eruptions, but none of great duration, nor has there been any loss of life in consequence.

It will be seen from the foregoing account that there is a great similarity in the general character of the eruptions of Ætna. Earthquakes presage the outburst; loud explosions are heard; rifts open in the sides of the mountain; smoke, sand, ashes, and scoriae are discharged; the action localizes itself in one or more craters; cinders are thrown out and accumulate around the crater in a conical form; ultimately lava rises through the new cone, frequently breaking down one side of it where there is least resistance, and flowing over the surrounding country. Out of the seventy-eight eruptions mentioned above, a comparatively small number have been of extreme violence, while many of them have been of a slight and harmless character.

Italy does not contain a more beautiful or fertile province than Calabria, the celebrated region which the ancients called Magna Grecia, where once flourished Crotona, Tarentum, Sybaris, and so many other prosperous cities. Situated between the volcanoes of Vesuvius and Ætna, Calabria has always been much exposed to the destructive influence of earthquakes, but the most terrible shock ever felt in the province was that of February 5, 1783. The ground was agitated in all directions, swelling like the waves of the ocean. Nothing could withstand such shocks, and not a building upon the surface remained erect. The beautiful city of Messina, the commercial metropolis of Sicily, was reduced to a heap of ruins.

Upon March 4, a fresh shock, almost as violent as the first, completed the work of destruction. The number of persons who perished in Calabria and Sicily during these two earthquakes is estimated at 80,000 and 320 of the 365 towns and vil-

lages which Calabria contained were destroyed. The greater number of those who lost their lives were buried amid the ruins of the houses, but many perished in fires that were kindled in most of the towns, particularly in Oppido, where the flames were fed by great magazines of oil. Not a few, especially among the peasantry dwelling in the country, were suddenly engulfed in fissures. Many who were only half buried in the ruins, and who might have been saved had there been help at hand, were left to die a lingering death from cold and hunger. Four Augustine monks at Terranova perished thus miserably. Having taken refuge in a vaulted sacristy, they were entombed in it alive by the masses of rubbish, and lingered for four days, during which their cries for help could be heard, till death put an end to their sufferings.

Of still more thrilling interest was the case of the Marchioness Spadara. Having fainted at the moment of the first great shock, she was lifted by her husband, who, bearing her in his arms, hurried with her to the harbor. Here, on recovering her senses, she observed that her infant boy had been left behind. Taking advantage of a moment when her husband was too much occupied to notice her, she darted off, and, running back to her house, which was still standing, she snatched her babe from his cradle. Rushing with him in her arms toward the staircase, she found the stair had fallen, barring all further progress in that direction. She fled from room to room, chased by the falling materials, and at length reached a balcony as her last refuge. Holding up her infant, she implored the few passers-by for help; but they all, intent on securing their own safety, turned a deaf ear to her cries. Meanwhile her mansion had caught fire, and ere long the balcony, with the devoted lady still grasping her darling, was hurled into the devouring flames.

A few cases are recorded of devotion similar to that of this heroic woman, but happily attended by more fortunate results. In the great majority of instances, however, the instinct of

self-preservation triumphed over every other feeling, rendering the wretched people callous to the dangers and sufferings of others. Still worse was the conduct of the half savage peasantry. They hastened into the towns like vultures to their prey. Instead of helping the sufferers, they ransacked the smoking ruins for plunder, robbed the persons of the dead, and of those entangled alive among the rubbish. They robbed the very injured who would have paid them handsomely for rescuing them. At Polistena, a gentleman had been buried head downward beneath the ruins of his house, and when his servant saw what had happened he actually stole the silver buckles off his shoes, while his legs were in the air, and made off with them. The unfortunate gentleman, however, managed to rescue himself from his perilous position.

Several cases occurred of persons being rescued alive from the ruins after a lapse of three, four, and even five days, and one on the seventh day after interment. Those who were thus rescued all declared that their direst sufferings were from thirst.

CHAPTER XXVII

LISBON EARTHQUAKE SCOURGED

Sixty Thousand Lives Lost in a Few Moments—An Opulent and Populous Capital Destroyed—Graphic Account by an English Merchant Who Resided in the Stricken City—Tidal Waves Drown Thousands in the City Streets—Ships Engulfed in the Harbor—Criminals Rob and Burn—Terrible Desolation and Suffering.

MORE than once in its history has Lisbon, the beautiful capital of Portugal, on the Tagus river, been devastated by earthquakes and tidal waves. Greatest of all these was the appalling disaster of 1755, when in a few minutes thousands upon thousands of the inhabitants were killed or drowned. An English merchant, Mr. Davy, who resided in the ill-fated city at that time, and was an eye-witness of the whole catastrophe, survived the event and wrote to a London friend the following account of it. The narrative reproduced herewith brings the details before the reader with a force and simplicity which leaves no doubt of the exact truth. Mr. Davy wrote as follows:

"On the morning of November 1st I was seated in my apartment, just finishing a letter, when the papers and the table I was writing on began to tremble with a gentle motion, which rather surprised me, as I could not perceive a breath of wind stirring. Whilst I was reflecting with myself what this could be owing to, but without having the least apprehension of the real cause, the whole house began to shake from the very foundation, and a frightful noise came from underground, resembling the hollow, distant rumbling of thunder.

"Upon this I threw down my pen, and started upon my feet, remaining a moment in suspense, whether I should stay in the apartment or run into the street, as the danger in both places seemed equal. In a moment I was stunned with a most horrid crash, as if every edifice in the city had tumbled down at once. The house I was in shook with such violence that the upper stories immediately fell, and though my apartment, which was on the first floor, did not then share the same fate, yet everything was thrown out of its place in such a manner that it was with no small difficulty I kept my feet, and expected nothing less than to be soon crushed to death, as the walls continued rocking to and fro, opening in several places; large stones falling down on every side from the cracks, and the ends of most of the rafters starting out from the roofs.

"To add to this terrifying scene, the sky in a moment became so gloomy that I could now distinguish no particular object; it was an Egyptian darkness indeed, such as might be felt.

"As soon as the gloom began to disperse and the violence of the shock seemed pretty much abated, the first object I perceived in the room was a woman sitting on the floor with an infant in her arms, all covered with dust, pale and trembling. I asked her how she got hither, but her consternation was so great that she could give me no account of her escape. I suppose that when the tremor first began, she ran out of her own house, and finding herself in such imminent danger from the falling stones, retired into the door of mine, which was almost contiguous to hers, for shelter, and when the shock increased, which filled the door with dust and rubbish, she ran upstairs into my apartment. The poor creature asked me, in the utmost agony, if I did not think the world was at an end; at the same time she complained of being choked, and begged me to procure her some water. Upon this I went to a closet where I kept a large jar of water, but found it broken to pieces. I told her she must not now think of quenching her

thirst, but saving her life, as the house was just falling on our heads, and if a second shock came, would certainly bury us both.

"I hurried down stairs, the woman with me, holding by my arm, and made directly to that end of the street which opens to the Tagus. Finding the passage this way entirely blocked up with the fallen houses to the height of their second stories, I turned back to the other end which led to the main street, and there helped the woman over a vast heap of ruins, with no small hazard to my own life; just as we were going into this street, as there was one part that I could not well climb over without the assistance of my hands as well as feet, I desired her to let go her hold, which she did, remaining two or three feet behind me, at which instant there fell a vast stone from a tottering wall, and crushed both her and the child in pieces. So dismal a spectacle at any other time would have affected me in the highest degree, but the dread I was in of sharing the same fate myself, and the many instances of the same kind which presented themselves all around, were too shocking to make me dwell a moment on this single object.

"I now had a long, narrow street to pass, with the houses on each side four or five stories high, all very old, the greater part already thrown down, or continually falling, and threatening the passengers with inevitable death at every step, numbers of whom lay killed before me, or what I thought far more deplorable, so bruised and wounded that they could not stir to help themselves. For my own part, as destruction appeared to me unavoidable, I only wished I might be made an end of at once, and not have my limbs broken, in which case I could expect nothing else but to be left upon the spot, lingering in misery, like those poor unhappy wretches, without receiving the least succor from any person.

"As self-preservation, however, is the first law of nature, these sad thoughts did not so far prevail as to make me totally dispair. I proceeded on as fast as I conveniently could,

though with the utmost caution, and having at length got clear of this horrid passage, I found myself safe and unhurt in the large open space before St. Paul's church, which had been thrown down a few minutes before, and buried a great part of the congregation. Here I stood for some time, considering what I should do, and not thinking myself safe in this situation, I came to the resolution of climbing over the ruins of the west end of the church, in order to get to the river's side, that I might be removed as far as possible from the tottering houses, in case of a second shock.

"This, with some difficulty, I accomplished, and here I found a prodigious concourse of people of both sexes, and of all ranks and conditions. There were several priests who had run from the altars in their sacerdotal vestments; ladies half dressed, and some without shoes; all these, whom their mutual dangers had here assembled as to a place of safety, were on their knees at prayer, with the terrors of death in their countenances.

"In the midst of these devotions the second great shock came on, little less violent than the first, and completed the ruin of those buildings which had been already much shattered. The consternation now became so universal, that the shrieks and cries of the frightened people could be distinctly heard from the top of St. Catherine's hill, a considerable distance off, whither a vast number of the populace had likewise retreated. At the same time we could hear the fall of the parish church there, whereby many persons were killed on the spot, and others mortally wounded. On a sudden I heard a general outcry, 'The sea is coming in, we are lost!' Turning my eyes toward the river, which at this place is nearly four miles broad, I could perceive it heaving and swelling in a most unaccountable manner, as no wind was stirring. In an instant there appeared, at some small distance, a large body of water, rising as it were like a mountain. It came on foaming and roaring, and rushed toward the shore with such impetuosity,

that we all immediately ran for our lives, as fast as possible; many were actually swept away, and the rest were above their waists in water, at a good distance from the bank.

"For my own part, I had the narrowest escape, and should certainly have been lost, had I not grasped a large beam that lay on the ground, till the water returned to its channel, which it did with equal rapidity. As there now appeared at least as much danger from the sea as the land, and I scarce knew whither to retire for shelter, I took a sudden resolution of returning, with my clothes all dripping, to the area of St. Paul's. Here I stood some time, and observed the ships tumbling and tossing about as in a violent storm. Some had broken their cables and were carried to the other side of the Tagus; others were whirled around with incredible swiftness; several large boats were turned keel upward; and all this without any wind, which seemed the more astonishing.

"It was at the time of which I am now writing, that the fine new quay, built entirely of rough marble, at an immense expense, was entirely swallowed up, with all the people on it, who had fled thither for safety, and had reason to think themselves out of danger in such a place. At the same time a great number of boats and small vessels, anchored near it, all likewise full of people, who had retired thither for the same purpose, were all swallowed up, as in a whirlpool, and never more appeared.

"This last dreadful incident I did not see with my own eyes, as it passed three or four stone-throws from the spot where I then was, but I had the account as here given from several masters of ships, who were anchored within two or three hundred yards of the quay, and saw the whole catastrophe. One of them in particular informed me that when the second shock came on, he could perceive the whole city waving backwards and forwards, like the sea when the wind first begins to rise; that the agitation of the earth was so great, even under the river, that it threw up his large anchor from the mooring,

which swam, as he termed it, on the surface of the water; that immediately upon this extraordinary concussion, the river rose at once nearly twenty feet, and in a moment subsided; at which instant he saw the quay, with the whole concourse of people upon it, sink down, and at the same time everyone of the boats and vessels that were near it were drawn into the cavity, which he supposes instantly closed upon them, inasmuch as not the least sign of a wreck was ever seen afterwards.

"I had not been long in the area of St. Paul's, when I felt the third shock, which though somewhat less violent than the two former, the sea rushed in again and retired with the same rapidity, and I remained up to my knees in water, though I had gotten upon a small eminence at some distance from the river, with the ruins of several intervening houses to break its force. At this time I took notice the waters retired so impetuously, that some vessels were left quite dry, which rode in seven-fathom water. The river thus continued alternately rushing on and retiring several times, in such sort that it was justly dreaded Lisbon would now meet the same fate which a few years ago had befallen the city of Lima. The master of a vessel which arrived here just after the first of November assured me that he felt the shock above forty leagues at sea so sensibly that he really concluded that he had struck upon a rock, till he threw out the lead and could find no bottom; nor could he possibly guess at the cause till the melancholy sight of this desolate city left him no room to doubt it.

"I was now in such a situation that I knew not which way to turn; I was faint from the constant fatigue I had undergone, and I had not yet broken my fast. Yet this had not so much effect on me as the anxiety I was under for a particular friend, who lodged at the top of a very high house in the heart of the city, and being a stranger to the language, could not but be in the utmost danger. I determined to go and learn, if possible, what had become of him. I proceeded, with some hazard, to

the large space before the convent of Corpo Santo, which had been thrown down, and buried a great number of people. Passing through the new square of the palace, I found it full of coaches, chariots, chaises, horses and mules, deserted by their drivers and attendants, and left to starve.

"From this square the way led to my friend's lodgings through a long, steep and narrow street. The new scenes of horror I met with here exceed all description; nothing could be heard but sighs and groans. I did not meet with a soul in the passage who was not bewailing the loss of his nearest relations and dearest friends. I could hardly take a single step without treading on the dead or dying. In some places lay coaches, with their masters, horses and riders almost crushed in pieces; here, mothers with infants in their arms; there, ladies richly dressed, priests, friars, gentlemen, mechanics, either in the same condition or just expiring; some had their backs broken, others great stones on their breasts; some lay almost buried in the rubbish, and crying out in vain for succor, were left to perish with the rest.

"At length I arrived at the spot opposite to the house where my friend, for whom I was so anxious, resided; and finding this as well as the other contiguous buildings thrown down, I gave him up for lost, and thought only of saving my own life.

"In less than an hour I reached a public house, kept by a Mr. Morley, near the English burying-ground, about a half a mile from the city, where I found a great number of my countrymen in the same wretched circumstances as myself.

"Perhaps you may think the present doleful subject here concluded; but the horrors of the day are sufficient to fill a volume. As soon as it grew dark, another scene presented itself, little less shocking than those already described. The whole city appeared in a blaze, which was so bright that I could easily see to read by it. It may be said without exaggeration that it was on fire in at least a hundred different places

at once, and thus continued burning for six days together, without intermission, or without the least attempt being made to stop its progress.

"It went on consuming everything the earthquake had spared, and the people were so dejected and terrified that few or none had courage enough to venture down to save any part of their substance. I could never learn that this terrible fire was owing to any subterraneous eruption, as some reported, but to three causes, which all concurring at the same time, will naturally account for the prodigious havoc it made. The first of November being All Saint's Day, a high festival among the Portuguese, every altar in every church and chapel, some of which have more than twenty, was illuminated with a number of wax tapers and lamps, as customary; these setting fire to the curtains and timber work that fell with the shock, the conflagration soon spread to the neighboring houses, and being there joined with the fires in the kitchen chimneys, increased to such a degree, that it might easily have destroyed the whole city, though no other cause had concurred, especially as it met with no interruption.

"But what would appear almost incredible to you, were the fact less notorious and public, is, that a gang of hardened villains, who had escaped from prison when the wall fell, were busily employed in setting fire to those buildings, which stood some chance of escaping the general destruction. I cannot conceive what could have induced them to this hellish work, except to add to the horror and confusion, that they might, by this means, have the better opportunity of plundering with security. But there was no necessity for taking this trouble, as they might certainly have done their business without it, since the whole city was so deserted before night, that I believe not a soul remained in it, except those execrable villains, and others of the same stamp. It is possible some of them might have had other motives besides robbing, as one in particular being apprehended—they say he was a Moor, con-

demned to the galleys—confessed at the gallows that he had set fire to the King's palace with his own hand; at the same time glorying in the action, and declaring with his last breath, that he hoped to have burnt all the royal family.

"The whole number of persons that perished, including those who were burnt or afterwards crushed to death whilst digging in the ruins, is supposed, on the lowest calculation, to amount to more than sixty thousand; and though the damage in other respects cannot be computed, yet you may form some idea of it, when I assure you that this extensive and opulent city is now nothing but a vast heap of ruins; that the rich and poor are at present upon a level; some thousands of families which but the day before had been in easy circumstances, being now scattered about in the fields, wanting every convenience of life, and finding none able to relieve them.

"In order that you may partly realize the prodigious havoc that has been made, I will mention one more instance among the many that have come under my notice. There was a high arched passage, like one of our old city gates, fronting the west door of the ancient cathedral; on the left hand was the famous church of St. Antonio, and on the right, some private houses several stories high. The whole area surrounded by all these buildings did not much exceed one of our small courts in London. At the first shock, numbers of people who were then passing under the arch, fled into the middle of this area for shelter; those in the two churches, as many as could possibly get out, did the same. At this instant, the arched gate-way, with the fronts of the two churches and contiguous buildings, all inclined one toward another with the sudden violence of the shock, fell down and buried every soul as they were standing here crowded together."

The portion of the earth's surface convulsed by this earthquake is estimated by Humboldt to have been four times greater than the whole extent of Europe. The shocks were felt not only over the Spanish peninsula, but in Morocco and

Algeria they were nearly as violent. At a place about twenty-four miles from the city of Morocco, a great fissure opened in the earth, and the entire village, with all its inhabitants, upward of 8,000 in number, were precipitated into the gulf, which immediately closed over its prey.

The earthquake was also felt as far to the westward as the West Indian islands of Antigua, Barbados, and Martinique, where the tide, which usually rises about two feet, was suddenly elevated above twenty feet, the water being at the same time as black as ink. Toward the northwest the shock was perceptible as far as Canada, whose great lakes were all disturbed. Toward the east it extended to the Alps, to Thuringia, and to Töplitz, where the hot springs were first dried up, and soon after overflowed with ochreous water. In Scotland the waters both of Loch Lomond and Loch Ness rose and fell repeatedly. Toward the northeast, the shock was sensibly felt throughout the flat country of northern Germany, in Sweden, and along the shores of the Baltic.

At sea, 140 miles to the southward of Lisbon, the ship Denia was strained as if she had struck on a rock; the seams of the deck opened, and the compass was upset. On board another ship, 120 miles to the westward of Cape St. Vincent, the shock was so violent as to toss the men up perpendicularly from the deck. The great sea wave rose along the whole southern and western coasts of Portugal and Spain; and at Cadiz it is said to have risen to a height of sixty feet. At Tangier, on the northern coast of Africa, the tide rose and fell eighteen times in rapid succession. At Funchal in Madeira, where the usual ebb and flow of the tide is seven feet, it being half tide at the time, the great wave rolled in, and at once raised the level of the water fifteen feet above high water mark. This immense tide, rushing into the city, caused great damage, and several other parts of the island were similarly flooded. The tide was also suddenly raised on the southern coast of Ireland; the

CHAPTER XXVIII

JAPAN AND ITS DISASTROUS EARTHQUAKES AND VOLCANOES

The Island Empire Subject to Convulsions of Nature—Legends of Ancient Disturbances—Famous Volcano of Fuji-yama Formed in One Night—More Than One Hundred Volcanoes in Japan—Two Hundred and Thirty-two Eruptions Recorded—Devastation of Thriving Towns and Busy Cities—The Capital a Sufferer—Scenes of Desolation after the Most Recent Great Earthquakes.

JAPAN may be considered the home of the volcano and the earthquake. Few months pass there without one or more earth shocks of considerable force, besides numerous lighter ones of too slight a nature to be worthy of remark. Japanese histories furnish many records of these phenomena.

There is an ancient legend of a great earthquake in 286 B.C., when Mount Fuji rose from the bottom of the sea in a single night. This is the highest and most famous mountain of the country. It rises more than 12,000 feet above the water level, and is in shape like a cone; the crater is 500 feet deep. It is regarded by the natives as a sacred mountain, and large numbers of pilgrims make the ascent to the summit at the commencement of the summer. The apex is shaped somewhat like an eight-petaled lotus flower, and offers from three to five peaks to view from different directions. Though now apparently extinct, it was in former times an active volcano, and the histories of the country mention several very disastrous eruptions. Japanese poets never weary in celebrating the praises of Fuji-san, or Fuji-yama, as it is variously called, and its conical form is one of the most familiar in Japanese painting and decorative art.

As Japan has not yet been scientifically explored throughout, and, moreover, as there is considerable difficulty in defining the kind of mountain to be regarded as a volcano, it is impossible to give an absolute statement as to the number of volcanoes in the country. If under the term volcano be included all mountains which have been in a state of eruption within the historical period, those which have a true volcanic form, together with those that still exhibit on their flanks matter ejected from a crater, we may conclude that there are at least 100 such mountains in the Japanese empire. Of this number about forty-eight are still active.

Altogether about 232 eruptions have been recorded, and of these the greater number took place in the southern districts. This may perhaps be accounted for by the fact that Japanese civilization advanced from the south. In consequence of this, records were made of various phenomena in the south when the northern regions were still unknown and unexplored.

The most famous of the active volcanoes is Asama-yama in Shinano. The earliest eruption of this mountain of which record now exists seems to have been in 1650. After that it was only feebly active for 133 years, when there occurred a very severe eruption in 1783. Even as late as 1870 there was a considerable emission of volcanic matter, at which time also violent shocks of earthquake were felt at Yokohama. The crater is very deep, with irregular rocky walls of a sulphur character, from apertures in which fumes are constantly sent forth.

Probably the earliest authentic instance of an earthquake in Japan is that which is said to have occurred in 416 A.D., when the imperial palace at Kioto was thrown to the ground. Again, in 599, the buildings throughout the province of Yamato were all destroyed, and special prayers were ordered to be offered up to the deity of earthquakes. In 679 a tremendous shock caused many fissures to open in the provinces of Chikuzen and Chikugo, in Kiushiu; the largest of these

chasms was over four miles in length and about twenty feet in width. In 829 the northern province of Dewa was visited in a similar manner; the castle of Akita was overthrown, deep rifts were formed in the ground in every direction, and the Akita river was dried up.

To descend to more recent instances, in 1702 the lofty walls of the outside and inside moats of the castle of Yeddo were destroyed, tidal waves broke along the coast in the vicinity, and the road leading through the famous pass of Hakone, in the hills to the east of Fuji-yama was closed up by the alteration in the surface of the earth. A period of unusual activity was between the years 1780 and 1800, a time when there was great activity elsewhere on the globe. It was during this period that Mount Unsen was blown up, and from 27,000 to 53,000 persons (according to different accounts) perished; that many islands were formed in the Satsuma sea; that Sakura-jima threw out so much pumice material that it was possible to walk a distance of twenty-three miles upon the floating debris in the sea; and that Asama ejected so many blocks of stone—one of which is said to have been forty-two feet in diameter—and a lava-stream sixty-eight kilometres in length.

In 1854 an earthquake destroyed the town of Shimoda, in the province of Idzu, and a Russian frigate, lying in the harbor at the time, was so severely damaged by the waves caused by the shock that she had to be abandoned. In 1855 came a great earthquake which was felt most severely at Yedo, though its destructive power extended for some distance to the west along the line of the Tokaido. It is stated that on this occasion there were in all 14,241 dwelling houses and 1,649 fire proof store houses overturned in the city, and a destructive fire which raged at the same time further increased the loss of life and property.

What was possibly the gravest disaster of its class in this land of volcanoes, since the terrible eruptions which came in the twenty years ending in 1800, occurred in the Bandai-san

region in northern Japan, on July 15, 1888. At about eight o'clock in the morning of that day, almost in the twinkling of an eye, Little Bandai-san was blown into the air, and wiped out of the map of Japan. A few moments later its debris had buried or devastated the surrounding country for miles, and a dozen or more of upland hamlets had been overwhelmed in the earthen deluge, or wrecked by other phenomena attending the outburst. Several hundreds of people had met with sudden and terrible death; scores of others had been injured; and the long roll of disaster included the destruction of horses and cattle, damming up of rivers, and laying waste of large tracts of rice-land and mulberry groves.

A small party was organized in Tokio to visit the scene. As the travelers approached the mountain, they were told that twenty miles in a straight line from Bandai-san no noise or earthquake was experienced on the 15th, but mist and gloom prevailed for about seven hours, the result of a shower of impalpable blue-gray ash, which fell to a depth of half an inch, and greatly puzzled the inhabitants. An ascent of about 3,000 feet was made to the back of the newly formed crater, so as to obtain a clear view of it and of the country which had been overwhelmed. Only on nearing the end of the ascent was the party again brought face to face with signs of the explosion. Here, besides the rain of fine, gray, ashen mud which had fallen on and still covered the ground and all vegetation, they came upon a number of freshly opened pits, evidently in some way the work of the volcano. Ascending the last steep rise to the ridge behind Little Bandai-san, signs of the great disaster grew in number and intensity.

The London Times correspondent, who was one of the party, wrote: "Fetid vapors swept over us, emanating from evil looking pools. Great trees, torn up by their roots, lay all around; and the whole face of the mountain wore the look of having been withered by some fierce and baleful blast. A few minutes further and we had gained the crest of the narrow

ridge, and now, for the first time, looked forth upon the sight we had come to see. I hardly know which to pronounce the more astonishing, the prospect that now opened before our eyes or the suddenness with which it burst upon us. To the former no more fitting phrase, perhaps, can be applied than that of absolute, unredeemed desolation—so intense, so sad, and so bewildering that I despair of describing it adequately in detail.

"On our right, a little above us, rose the in-curved rear wall of what, eight days before, had been Sho-Bandai-san, a ragged, almost sheer cliff, falling, with scarce a break, to a depth of fully 600 feet. In front of the cliff everything had been blown away and scattered over the face of the country before it, in a roughly fan-shaped deposit of for the most part unknown depth—deep enough, however, to erase every landmark, and conceal every feature of the deluged area. At the foot of the cliff, clouds of suffocating steam rose ceaselessly and angrily, and with loud roaring, from two great fissures in the crater bed, and now and then assailed us with their hellish odor. To our eyes, the base, denuded by the explosion, seemed to cover a space of between three and four square miles. This, however, can only be rough conjecture. Equally vague must be all present attempts to determine the volume of the disrupted matter. Yet, if we assume, as a very moderate calculation, that the mean depth of the debris covering a buried area of thirty square miles is not less than fifteen feet, we find that the work achieved by this great mine of Nature's firing was the upheaval and wide distribution of no fewer than 700,000,000 tons of earth, rocks, and other ponderous material. The real figure is probably very much greater."

The desolation beyond the crater, and the mighty mass thrown out by the volcano which covered the earth, were almost incredible. "Down the slopes of Bandai-san, across the valley of the Nagase-gawa, choking up the river, and stretching beyond it to the foot-hills, five or six miles away

swept a vast, billowy sheet of ash-covered earth or mud, obliterating every foot of the erstwhile smiling landscape. Here and there the eyes rested on huge, disordered heaps of rocky debris, in the distance resembling nothing so much as the giant, concrete, black substructure of some modern breakwater. It was curious to see on the farther side the sharp line of demarkation between the brown sea of mud and the green forests on which it had encroached; or, again, the lakes formed in every tributary glen of the Nagase-gawa by the massive dams so suddenly raised against the passage of their stream waters. One lake was conspicuous among the rest. It was there that the Nagase-gawa itself had been arrested at its issue from a narrow pass by a monster barrier of disrupted matter thrown right across its course. Neither living thing nor any sign of life could be discerned over the whole expanse. All was dismally silent and solitary. Beneath it, however, lay half a score of hamlets, and hundreds of corpses of men, women and children, who had been overtaken by swift and painful deaths."

Although the little village of Nagasaka was comparatively uninjured, nearly all its able-bodied inhabitants lost their lives in a manner which shows the extraordinary speed with which the mud-stream flowed. When Little Bandai-san blew up, and hot ashes and sand began to fall, the young and strong fled panic-stricken across the fields, making for the opposite hills by paths well known to all. A minute later came a thick darkness, as of midnight. Blinded by this, and dazed by the falling debris and other horrors of the scene, their steps, probably also their senses, failed them. And before the light returned every soul was caught by a swift bore of soft mud, which, rushing down the valley bed, overwhelmed them in a fate more horrible and not less sudden than that of Pharaoh and his host. None escaped save those who stayed at home—mostly the old and very young.

A terrible earthquake convulsed central Japan on the

morning of October 25, 1891. The waves of disturbance traversed thirty-one provinces, over which the earth's crust was violently shaken for ten minutes together, while slighter shocks were felt for a distance of 400 miles to the north, and traveled under the sea a like distance, making themselves felt in a neighboring island. In Tokio itself, though 170 miles from the center of disturbance, it produced an earthquake greater than any felt for nearly forty years, lasting twelve minutes. Owing, however, to the character of the movement, which was a comparatively slow oscillation, the damage was confined to the wrecking of some roofs and chimneys. Very different were its results in the central zone of agitation, concerning which a correspondent wrote as follows:

"There was a noise as of underground artillery, a shake, a second shake, and in less than thirty seconds the Nagoya-Gifu plain, covering an area of 1,200 square miles, became a sea of waves, more than 40,000 houses fell, and thousands of people lost their lives. The sequence of events was approximately as follows: To commence at Tokio, the capital, which is some 200 miles from the scene of the disaster, on October 25th, very early in the morning, the inhabitants were alarmed by a long, easy swaying of the ground, and many sought refuge outside their doors. There were no shocks, but the ground moved back and forth, swung round, and rose and fell with the easy, gentle motion of a raft upon an ocean swell. Many became dizzy, and some were seized with nausea."

These indications, together with the movements of the seismographs, denoted a disturbance at a considerable distance, but the first surmise that it was located under the Pacific Ocean, was unfortunately incorrect. The scene of the catastrophe was indicated only by tidings from its outskirts, as all direct news was cut off by the interruption of railway and telegraphic communication. An exploratory and relief party started on the second day from Tokio, not knowing how far

they would be able to proceed by train, and the correspondent who accompanied them thus described his experiences:

"Leaving Tokio by a night train, early next morning we were at Hamamatsu, 137 miles distant from Tokio, on the outside edge of the destructive area. Here, although the motion had been sufficiently severe to destroy some small warehouses, to displace the posts supporting the heavy roof of a temple, and to ruffle a few tiles along the eaves of the houses, nothing serious had occurred. At one point, owing to the lateral spreading of an embankment, there had been a slight sinkage of the line, and we had to proceed with caution. Crossing the entrance to the beautiful lake of Hamana Ko, which tradition says was joined to the sea by the breaking of a sand-spit by the sea waves accompanying an earthquake in 1498, we rose from the rice fields and passed over a country of hill and rock. Further along the line signs of violent movement became more numerous. Huge stone lanterns at the entrances of temples had been rotated or overturned, roofs had lost their tiles, especially along the ridge, sinkages in the line became numerous, and although there was yet another rock barrier between us and the plain of great destruction, it was evident that we were in an area where earth movements had been violent."

The theatre of maximum destruction was a plain, dotted with villages and homesteads, supporting, under the garden-like culture of Japan, 500 and 800 inhabitants to the square mile, and containing two cities, Nagoya and Gifu, with populations respectively of 162,000 and 30,000, giving probably a round total of half a million human beings. Within about twelve miles of Gifu, a subsidence on a vast scale took place, engulfing a whole range of hills, while over lesser areas the soil in many places slipped down, carrying with it dwellings and their inmates. Gifu was a total wreck, devastated by ruin and conflagration, causing the destruction of half its houses. Ogaki, nine miles to the west, fared even worse, for here only

113 out of 4,434 houses remained standing, and one-tenth of the population were killed or wounded. In one temple, where service was being held, only two out of the entire congregation escaped.

Nagoya, too, suffered heavily, and thousands of houses collapsed. The damage at this place was produced by three violent shocks in quick succession, preceded by a deep, booming sound. During the succeeding 206 hours, 6,600 earth spasms of greater or less intensity were felt at increasing intervals, occurring in the beginning probably at the rate of one a minute. The inhabitants were driven to bivouac in rude shelters in the streets, and there was great suffering among the injured, to whom it was impossible to give proper care for many days after the disaster. Some estimates placed the figure of the killed and wounded as high as 24,000, whilst not less than 300,000 were rendered homeless.

Owing to the frequency of earthquake shocks in Japan, the study of their causes and effects has had a great deal of attention there since the introduction of modern science into the island empire. The Japanese have proved as energetic in this direction as they are in purely material progress on the lines of western civilization, and already they are recognized as the most advanced of all people in their study of seismology and its accompanying phenomena.

CHAPTER XXIX

KRAKATOA, THE GREATEST OF VOLCANIC EXPLOSIONS

The Volcano That Blew Its Own Head Off—The Terrific Crash Heard Three Thousand Miles—Atmospheric Waves Travel Seven Times Around the Earth—A Pillar of Dust Seventeen Miles High—Islands of the Malay Archipelago Blotted Out of Existence—Native Villages Annihilated—Other Disastrous Upheavals in the East Indies.

ONE of the fairest regions of the world is the Malay Archipelago of the East Indies. Here nature is prodigal with her gifts to man, and the cocoa-palm, cinnamon and other trees flourish, and rice, cotton, the sugar cane and tobacco yield their increase under cultivation. But beneath these scenes of loveliness, there are terrific energies, for this region is a focus of intense volcanic action. In the Sunda strait, between Sumatra and Java, there lies a group of small volcanic islands, the largest of which is Krakatoa. It forms part of the "basal wreck" of a large submarine volcano, whose visible edges are also represented by Velaten and Lang islands.

For two hundred years the igneous forces beneath Krakatoa remained dormant; but in September, 1880, premonitory shocks of earthquake were heard in the neighborhood. At length the inhabitants of Batavia and Bintenzorg were startled on May 20, 1883, by booming sounds which came from Krakatoa, one hundred miles distant. A mail steamer passing through the strait, had her compass violently agitated. Next

day a sprinkling of ashes was noticed at some places on each side of the strait, and toward evening a steam-column rising from Krakatoa revealed the locality of the disturbance. The commander of the German war ship Elisabeth, while passing, estimated the dust-column to be about thirty-six thousand feet, or seven miles high.

Volcanic phenomena being common to that region, no fears were entertained by the inhabitants in the vicinity; and an excursion party even started from Batavia to visit the scene of action. They reached the island on May 27th, and saw that the cone of Perborwatan was active, and that a column of vapor arose from it to a height of not less than ten thousand feet, while lumps of pumice were shot up to about six hundred feet. Explosions occurred at intervals of from five to ten minutes, each of these outbursts uncovering the liquid lava in the vent, the glow of which lighted up the overhanging steam-cloud for a few seconds.

Shortly after this visit the activity diminished. But on June 19th it was noticed at Anjer that the height of the dust and vapor-column, and likewise the explosions were again increasing. On the 24th a second column was seen rising. At length, Captain Ferzenaar, chief of the Topographical Survey of Bantam, visited Krakatoa island on August 11th. He found its forests destroyed, and the mantle of dust near the shores was twenty inches thick. Three large vapor-columns were noted, one marking the position of the crater of Perborwatan, while the other two were in the center of the island, and of the latter, one was probably Danan. There were also no less than eleven other eruptive foci, from which issued smaller steam-columns and dust. This was the last report prior to the great paroxysm.

During the next two or three weeks there was a decline in the energy of the volcano, but on the afternoon of Sunday, August 26th, and all through the following night, it was evident that the period of moderate eruptive action had passed,

and that Krakatoa had now entered upon the paroxysmal stage. From sunset on Sunday till midnight the tremendous detonations followed each other so quickly that a continuous roar may be said to have issued from the island. The full terrors of the eruption were now approaching. The distance of ninety-six miles from Krakatoa was not sufficient to permit sleep to the inhabitants of Batavia. All night volcanic thunders sounded like the discharges of artillery at their very doors. On the next morning there were four mighty explosions. The third was of appalling violence, and it gave rise to the most far-reaching effects. The entire series of grand phenomena at that spot extended over a little more than thirty-six hours.

Captain Thompson, of the Media, then seventy-six miles northeast of Krakatoa, saw a black mass like smoke rising into the clouds to an altitude estimated at not less than seventeen miles. The eruption was also viewed by Captain Wooldridge at a distance of forty miles. He speaks of the vapory mass looking like "an immense wall, with bursts of forked lightning, at times like large serpents rushing through the air." After sunset this dark wall resembled "a blood-red curtain with the edges of all shades of yellow, the whole of a murky tinge, with fierce flashes of lightning." Two other masters of vessels, at about the same distance from the volcano, report seeing the mastheads and yardarms of their ships aglow with electric fire. Such effects seem to be easily explicable. When we consider how enormous must be the friction going on in the hot air, through the clash against each other of myriads of particles of volcanic dust, during ejection and in their descent, it is evident that such friction is adequate to produce a widespread electrical disturbance in the surrounding atmosphere. The rush of steam through craters or other fissures would also contribute to these disturbances.

From these causes the compasses of passing ships were much disturbed. And yet the fall of magnetic oxide of iron

(magnetite), a constituent of volcanic ash, possibly had some share in creating these perturbations. On the telephone line from Ishore, which included a submarine cable about a mile long, reports like pistol shots were heard. At Singapore, five hundred miles from Krakatoa, it was noted at the Oriental Telephone Company's station that, on putting the receiver to the ear, a roar like that of a waterfall was heard. So great was the mass of vapor and dust in the air, that profound darkness, which lasted many hours, extended even to one hundred and fifty miles from the focus of the eruption. There is the record, among others, that it was "pitch dark" at Anjer at two o'clock in the afternoon of the 26th.

So great, too, was the ejective force that the fine volcanic dust was blown up to a height of fifty thousand feet, or over nine miles, into space. Another estimate gives the enormous altitude of seventeen miles to which the dust had been blown. The volcanic ash, which fell upon the neighboring islands within a circle of nine and one half miles radius, was from sixty-five to one hundred and thirty feet thick. At the back of the island the thickness of the ash beds was from one hundred and ninety-five to two hundred and sixty feet. Masses of floating pumice encumbered the strait. The coarser particles of this ash fell over a known area equal to 285,170 square miles, a space equal to the whole of the New England States, New York, New Jersey, Pennsylvania, Ohio Indania and Illinois. It is calculated that the matter so ejected must have been considerably over a cubic mile in volume.

Another distinguishing feature of this display of nature's powers was the magnitude and range of the explosive sounds. Lloyd's agent at Batavia, ninety-four miles distant from Krakatoa, reported that on the morning of the 27th the reports and concussions were simply deafening. At Carimon, Java, which is three hundred and fifty-five miles distant, the natives heard reports which led them to suppose that a distant ship was in distress; boats put off for what proved to be a futile search.

The explosions were heard not only all over the province of Macassar, nine hundred and sixty-nine miles from the scene of the eruption, but over a yet wider area. At a spot one thousand one hundred and sixteen miles distant—St. Lucia bay, Borneo—some natives heard the awful sound. It stirred their consciences, for, being guilty of murder, they fled, fearing that such sounds signified the approach of an avenging force. Again, in the island of Timor, one thousand three hundred and fifty-one miles away, the people were so alarmed that the government sent off a steamer to seek the cause of the disturbance.

At that time, also, the shepherds on the Victoria plains, West Australia, thought they heard the firing of heavy artillery, at a spot one thousand seven hundred miles distant. At midnight, August 26th, the people of Daly Waters, South Australia, were aroused by what they thought was the blasting of a rock, a sound which lasted a few minutes. "The time and other circumstances show that here again was Krakatoa heard, this time at the enormous distance of two thousand and twenty-three miles." And yet there is trustworthy evidence that the sounds were heard over even greater distances. Thundering noises were heard at Diego Garcia, in the Chagos islands, two thousand two hundred and sixty-seven miles from Krakatoa. It was imagined that some vessel must be in distress, and search was accordingly made. But most remarkable of all, Mr. James Wallis, chief of police in Rodriguez, across the Indian ocean, and nearly three thousand miles away from Krakatoa, made a statement in which he said that "several times during the night of August 26th-27th reports were heard coming from the eastward like the distant roar of heavy guns. These reports continued at intervals of between three and four hours." Obviously, some time was needed for the sounds to make such a journey. On the basis of the known rate of velocity, they must have been heard at Rodriguez four hours after they started from their source.

And yet, great as was the range of such vibrations, they could not be compared with that of the air-wave caused by the mighty outburst. This atmospheric wave started from Krakatoa at two minutes past ten on that eventful Monday morning, moving onward in an ever-widening circle, like that produced when a stone is thrown into smooth water. This ring-like wave traveled on at the rate of from six hundred and seventy-four to seven hundred and twenty-six miles an hour, and went around the world four, if not even seven times, as evidenced by the following facts: Batavia is nearly a hundred miles from the eruptive focus under review. There was connected with its gas-holder the usual pressure recorder. About thirteen minutes after the great outburst, this gauge showed a barometric disturbance equal to about four-tenths of an inch of mercury, that is, an extra air pressure of about a fifth of a pound on every square inch. The effects on the air of minor paroxysmal outbreaks are also recorded by this instrument; but barometers in the most distant places record the same disturbance. The great wave passed and repassed over the globe and no inhabitant was conscious of the fact. Barometers in the principal cities of the world automatically recorded this effect of the first great wave from Krakatoa to its antipodes in Central America, and also the return wave. The first four oscillations left their mark on upward of forty barograms, the fifth and sixth on several, and at Kew, England, the existence of a seventh was certainly established.

At the same time that this immense aerial undulation started on its tour around the world, another wave but of awful destructiveness, a seismic sea-wave, started on a similar journey. There can hardly be a doubt that this so-called "tidal-wave" was synchronous with the greatest of the explosions. A wave from fifty to seventy-two feet high arose and swept with resistless fury upon the shores each side of the straits. The destruction to life and property will probably never be fully known. At least thirty-six thousand lives were

lost; a great part of the district of North Bantam was destroyed; and the towns of Anjer, Merak, Tyringin, and neighboring villages were overwhelmed. A man-of-war, the Berouw, was cast upon the shore of Sumatra nearly two miles inland, and masses of coral from twenty to fifty tons in weight were torn from the bed of the sea and swept upon the shore.

The formerly fertile and densely populated islands of Sibuku and Sibesi were entirely covered by a deposit of dry mud severals yards thick, and furrowed by deep crevasses. Of the inhabitants all perished to a man. Three islands, Steers, Calmeyer, and the islet east of Verlaten, completely disappeared and were covered by twelve or fourteen feet of water. Verlaten, formerly one mass of verdure, was uniformly covered with a layer of ashes about one hundred feet thick.

A few days after this eruption some remarkable sky effects were observed in different parts of the world. Many of these effects were of extraordinary beauty. Accordingly scientific inquiry was made, and in due time there was collected and tabulated a list of places from whence these effects were seen, together with the dates of such occurrences. Eventually it was concluded that such optical phenomena had a common cause, and that it must be the dust of ultra-microscopic fineness at an enormous altitude. All the facts indicated that such a cloud started from the Sunda straits, and that the prodigious force of the Krakatoa eruption could at that time alone account for the presence of impalpable matter at such a height in the atmosphere.

This cloud traveled at about double the speed of an express train, by way of the tropics of Cancer and of Capricorn. Carried by westerly-going winds, in three days it had crossed the Indian Ocean and was rapidly moving over Central Africa; two days later it was flying over the Atlantic; then, for two more days over Brazil, and then across the Pacific toward its birth-place. But the wind still carried this

haze of fine particles onward, and again it went around the world within a fortnight. In November, the dust area had expanded so as to include North America and Europe.

Here are a few facts culled from the report of the Royal Society of London. On the 28th, at Seychelles, the sun was seen as through a fog at sunset, and there was a lurid glare all over the sky. At the island of Rodriguez, on that day, "a strange, red, threatening sky was seen at sunset." At Mauritius (28th), there is the record "Crimson dawn, sun red after rising, gorgeous sunset, first of the afterglows; sky and clouds yellow and red up to the zenith." 28th and 29th, Natal—"most vivid sunsets, also August 31st and September 5th, sky vivid red, fading into green and purple." On the last days of August and September 1st, the sun, as seen from South America, appeared blue, while at Panama on the 2d and 3d of that month, the sun appeared green. "On the 2d of September, Trinidad, Port of Spain—Sun looked like a blue ball, and after sunset the sky became so red that there was supposed to be a big fire." "On the 5th of September, Honolulu—Sun set green. Remarkable afterglow first seen. Secondary glow lasted till 7:45 P. M., gold, green and crimson colors. Corona constantly seen from September 5th to December 15th. Misty rippled surface of haze."

It remains to be said that when this now famous island of Krakatoa was visited shortly after the great eruption, wonderful changes were noted. The whole northern and lower portion of the island had vanished, except an isolated pitchstone rock, ten yards square, and projecting out of the ocean with deep water all around it. What a tremendous work of evisceration this must have been is attested by the fact that where Krakatoa island, girt with luxuriant forests, once towered from three hundred to fourteen hundred feet above the sunlit waters, it is now, in some places, more than a thousand feet below them.

There is no region more frequently visited by earthquakes

than the beautiful lands in the Indian ocean, and nowhere has greater damage been done than on the beautiful island of Java. In former ages Sumatra and Java formed one single island, but in the year 1115, after a terrific earthquake, the isthmus which connected them, disappeared in the waves with all its forests and fertile fields.

These two islands have more than 200 volcanoes, half of which have never been explored, but it is known that whenever there has been an eruption of any one of them, one or the other of the two islands has been visited by an earthquake. Moreover, earthquakes are so frequent in the whole archipelago that the principal ones serve as dates to mark time or to refer to, just as in our own country is the case with any great historic event. A month rarely passes without the soil being shaken, and the disappearance of a village is of frequent occurrence.

In 1822 the earthquake which accompanied the eruption of the Javanese volcano of Yalung-Yung, utterly destroyed 144 towns and villages. In 1772, when the Papand-Yung was in a state of furious eruption, the island of Java was violently agitated, and a tract of nearly twenty-five square leagues, which but the day before had been covered with flourishing villages and farms, was reduced to a heap of ruins. In 1815 an earthquake, accompanied by an eruption of the volcano of Timboro, in the island of Sumatra, destroyed more than 20,000 lives.

It is rare even in this archipelago that there occurs a cataclysm so terrible as that of 1883. When the first eruption of Krakatoa occurred on August 25, it seemed that it was a signal to the other volcanoes of Java and Sumatra. By mid-day Maha-Meru, the greatest, if not the most active of the Javanese volcanoes, was belching forth flame continuously. The eruption soon extended to the Gunung-Guntus and other volcanoes, until a third of the forty-five craters in Java were either in full blast, or beginning to show signs of eruption. While

these eruptions were going on, the sea was in a state of tremendous agitation. The clouds floating above the water were charged with electricity, and at one moment there were fifteen large water-spouts to be seen at the same time.

Men, women and children fled in terror from their crumbling habitations, and filled the air with their cries of distress. Hundreds of them who had not time to escape were buried beneath the ruins. On Sunday evening the violence of the shocks and of the volcanic eruptions increased, and the island of Java seemed likely to be entirely submerged. Enormous waves dashed against the shore, and in some cases forced their way inland, while enormous crevices opened in the ground, threatening to engulf at one fell swoop all the inhabitants and their houses.

Toward midnight there was a scene of horror passing the powers of imagination. A luminous cloud gathered above the chain of the Kandangs, which run along the southeastern coast of Java. This cloud increased in size each minute, until at last it came to form a sort of dome of a gray and blood-red color, which hung over the earth for a considerable distance. In proportion as this cloud grew, the eruptions gained fresh force, and the floods of lava poured down the mountain sides without ceasing, and spread into the valleys, where they swept all before them. On Monday morning, about two o'clock, the heavy cloud suddenly broke up, and finally disappeared, but when the sun rose it was found that a tract of country extending from Point Capucine to the south as far as Negery Passoerang, to the north and west, and covering an area of about fifty square miles, had entirely disappeared.

There stood the previous day the villages of Negery, and Negery Babawang. Not one of the inhabitants had escaped. They and their villages had been swallowed up by the sea.

CHAPTER XXX

OUR GREAT HAWAIIAN AND ALASKAN VOLCANOES

Greatest Volcanoes in the World Are Under the American Flag—Huge Craters in Our Pacific Islands—Native Worship of the Gods of the Flaming Mountains—Eruptions of the Past—Heroic Defiance of Pele, the Goddess of Volcanoes, by a Brave Hawaiian Queen—The Spell of Superstition Broken—Volcanic Peaks in Alaska, Our Northern Territory—Aleutian Islands Report Eruptions,

UNDER the American flag we are ourselves the possessors of some of the greatest active volcanoes in the world, and the greatest of all craters, the latter extinct indeed, for many years, but with a latent power that no one could conceive should it once more begin activity.

Hawaii, Paradise of the Pacific, raised by the fires of the very Inferno out of the depths of the ocean centuries ago, to become in recent years a smiling land of tropic beauty and an American island possession! Hawaii is the land of great volcanoes, sometimes slumbering and again pouring forth floods of molten fire to overwhelm the peaceful villages and arouse the superstitious fears of the natives.

Alaska, too, is a region of great volcanic ranges and eruptive activity, the Aleutian islands being raised from the bed of the Pacific by the same natural forces.

The Hawaiian islands occupy a central position in the North Pacific ocean, about 2,000 miles west of the California coast. The group includes eight inhabited islands, all of vol-

canic origin, and they are, substantially, naught but solid aggregations of fused, basaltic rock shot up from the earth's center, during outbursts of bye-gone ages, and cooled into mountains of stone here in the midst of the greatest body of water on the globe. In many localities, however, the accretions of centuries have so covered them with vegetable growths that their general appearance is not greatly different from that of other sections of the earth's surface.

The largest of the group is Hawaii, and it includes nearly two-thirds of the total area. Here stand the highest mountains found on any island in the known world. Only a few peaks of the Alps are as high as Mauna Loa (Long mountain), which towers 13,675 feet above the level of the sea, and Mauna Kea (White mountain), the height of which is 13,805 feet. In east Maui stands Haleakala, with an elevation about equal to that of Mount Ætna. This extinct volcano enjoys the distinction of having the largest crater in the world, a monstrous pit, thirty miles in circumference and 2,000 feet deep. The vast, irregular floor contains more than a dozen subsidiary craters or great cones, some of them 750 feet high. At the Kaupo and Koolau gaps the lava is supposed to have burst through and made its way down the mountain sides. The cones are distinctly marked as one looks down upon them; and it is remarkable that from the summit the eye takes in the whole crater, and notes all its contents, diminished, of course, by their great distance. Not a tree, shrub, nor even a tuft of grass obstructs the view. The natives have no traditions of Haleakala in activity. There are signs of several lava flows, and one in particular is clearly much more recent than the others.

The greatest point of interest in the islands is the great crater of Kilauea. It is nine miles in circumference and perhaps a thousand feet deep. Nowhere else within the knowledge of mankind is there a living crater to be compared with it. Moreover, there is no crater which can be entered and explored with ease and comparative safety save Kilauea

alone. There have been a few narrow escapes, but no accidents and it is needless to add that no description can give anyone an adequate idea of the incomparable splendor of the scene. It is, indeed, a "bottomless pit," bounded on all sides by precipitous rocks. The entrance is effected by a series of steps, and below these by a scramble over lava and rock debris. The greater part of the crater is a mass of dead, though not cold, lava; and over this the journey is made to the farthest extremity of the pit, where it is necessary to ascend a tolerably steep hill of lava, which is the bank of the fiery lake. A step or two brings one close to the awful margin, and he looks down over smoking, frightful walls, three hundred feet or more, into a great boiling, bubbling, sizzling sea of fire.

The tendency of the current, if it may be so called, is centripetal, though at times it varies, flowing to one side; while along the borders of the pit, waves of slumbering lava, apparently as unmovable as those over which the traveler has just crossed, lie in wrinkled folds and masses, heaped against the shore. If one watches those waves closely, however, he will presently observe what appears like a fiery, red serpent coming up out of the lake and creeping through and under them, like a chain of brilliant flame, its form lengthening as it goes, until it has circumscribed a large share of the entire basin. Then it begins to spread and flatten, as though the body had burst asunder and was dissolving back again, along its whole trail, into the fierce flood of turbulent fury whence it came.

Soon the broad, thick mass of lava, thus surrounded, which seemed fixed and immovable, slowly drifts off from the shore to the center of the lake; reminding one of detached cakes of broken ice, such as are often seen in winter when the thaws come, or during spring freshets when the streams burst their encrusted chains. The force of this comparison is strengthened when these cakes reach the center, for there they go to pieces exactly after the manner of large pieces of ice, and turning upon their edges, disappear in the ravenous vortex

below, which is forever swallowing up all that approaches it, giving nothing back in return.

Two kinds of lava form on the face of the lake. One is stony, hard, and brittle; the other flexible and tough, similar to India-rubber. The flexible kind forms exclusively on one side of the basin and spreads over it like an immense, sombre blanket; and, as it floats down in slow procession to the central abyss, occasionally rises and falls with a flapping motion, by force of the generated gases underneath, like a sheet shaken in the wind.

Occasionally, the fire forces its way through this covering and launches huge, sputtering fountains of red-hot liquid lava high into the air, with a noise that resembles distant bombs exploding; and again, multitudes of smaller founts burst into blossom all over the lake, presenting a spectacle of wild beauty across its entire surface.

In Hawaiian mythology, Pele was the goddess of volcanoes, and she and her numerous family formed a class of deities by themselves. She with her six sisters, Hiiaka, her brother Kamohoalii, and others, were said to have emigrated from Kahiki (Samoa) in ancient times. They were said to have first lived at Moanalua in Oahu, then to have moved their residence to Kalaupapa, Molokai, then to Haleakala, and finally to have settled on Hawaii. Their headquarters were in the Halemau-mau, in the crater of Kilauea, but they also caused the eruptions of Mauna Loa and Hualalai. In southern Hawaii Pele was feared more than any other deity, and no one dared to approach her abode without making her an offering of the ohelo-berries that grow in the neighborhood. Whenever an eruption took place, great quantities of hogs and other articles of property were thrown into the lava stream in order to appease her anger.

In 1824, Kapiolani, the daughter of a great chief of Hilo, having been converted to Christianity by the missionaries, determined to break the spell of the native belief in Pele. In

spite of the strenuous opposition of her friends and even of her husband, she made a journey of about 150 miles, mostly on foot, from Kealakekua to Hilo, visiting the great crater of Kilauea on her way, in order to defy the wrath of Pele, and to prove that no such being existed.

On approaching the volcano, she met the priestess of Pele, who warned her not to go near the crater and predicted her death if she violated the tabus of the goddess.

"Who are you?" demanded Kapiolani.

"One in whom the goddess dwells," she replied.

In answer to a pretended letter of Pele, Kapiolani quoted passages from the Bible until the priestess was silenced. Kapiolani then went forward to the crater, where Mr. Goodrich, one of the missionaries, met her. A hut was built for her on the eastern brink of the crater, and here she passed the night.

The next morning she and her company of about eighty persons descended over 500 feet to the "Black Ledge." There, in full view of the grand and terrific action of the inner crater, she ate the berries consecrated to Pele, and threw stones into the burning lake, saying: "Jehovah is my God. He kindled these fires. I fear not Pele. If I perish by her anger, then you may fear Pele; but if I trust in Jehovah, and he preserve me when breaking her tabus, then you must fear and serve him alone. . . ."

It is needless to say that she was not harmed, and this act did much to destroy the superstitious dread in which the heathen goddess was held by the ignorant and credulous natives.

The history of Hawaiian volcanic eruptions tells no such tales of horror as regards the loss of life and property as may be read in the accounts of other great volcanoes of the globe. This, however, is simply because the region is less populated, and their tremendous manifestations of power have lacked material to destroy. There have been fatal catastrophes, and ruin has been wrought which seems slight only in comparison with the greater disasters of a similar nature.

In 1855 an eruption of Mauna Loa occurred. The lava flowed toward Hilo, and for several months, spreading through the dense forests which belt the mountain, crept slowly shorewards, threatening this beautiful portion of Hawaii with the fate of the Cities of the Plain. For five months the inhabitants watched the inundation, which came a little nearer every day. Should they flee or not? Would their beautiful homes become a waste of jagged lava and black sand, like the neighboring district of Puna, once as fair as Hilo? Such questions suggested themselves as they nightly watched the nearing glare, till the fiery waves met with obstacles which piled them up in hillocks eight miles from Hilo, and the suspense was over.

Only gigantic causes can account for the gigantic phenomena of this lava-flow. The eruption traveled forty miles in a straight line, or sixty including sinuosities. It was from one to three miles broad, and from five to 200 feet deep, according to the contours of the mountain slopes over which it flowed. It lasted for thirteen months, pouring out a torrent of lava which covered nearly 300 square miles of land, and its volume was estimated at 38,000,000,000 cubic feet! In 1859 lava fountains 400 feet in height, and with a nearly equal diameter, played on the summit of Mauna Loa. This eruption ran fifty miles to the sea in eight days, but the flow lasted much longer, and added a new promontory to Hawaii.

On March 27, 1868, a series of earthquakes began and became more startling from day to day, until their succession became so rapid that the island quivered like the lid of a boiling pot nearly all the time between the heavier shocks. The trembling was like that of a ship struck by a heavy wave. Late in the afternoon of April 2, the climax came. The crust of the earth rose and sank like the sea in a storm. Rocks were rent, mountains fell, buildings and their contents were shattered, trees swayed like reeds, animals ran about demented; men thought the judgment had come. The earth

opened in thousands of places, the roads in Hilo cracked open; horses and their riders, and people afoot, were thrown violently to the ground. At Kilauea the shocks were as frequent as the ticking of a watch. In Kau, south of Hilo, 300 shocks were counted during the day. An avalanche of red earth, supposed to be lava, burst from the mountain side, throwing rocks high into the air, swallowing up houses, trees, men and animals, and traveling three miles in as many minutes, burying a hamlet with thirty-one inhabitants, and 500 head of cattle.

The people of the valleys fled to the mountains, which themselves were splitting in all directions, and collecting on an elevated spot, with the earth reeling under them, they spent a night of terror. Looking toward the shore, they saw it sink, and at the same moment a wave, whose height was estimated at from forty to sixty feet, hurled itself upon the coast and receded five times, destroying whole villages and engulfing forever forty-six people who had lingered too near the shore.

Still the earthquakes continued, and still the volcanoes gave no sign. People put their ears to the quivering ground and heard, or thought they heard, the surgings of the imprisoned lava sea rending its way among the ribs of the earth. Five days after the destructive earthquake of April 2, the ground south of Hilo burst open with a crash and a roar, which at once answered all questions concerning the volcano. The molten river, after traveling underground for twenty miles, emerged through a fissure two miles in length with a tremendous force and volume. Four huge fountains boiled up with terrific fury, throwing crimson lava and rocks weighing many tons from 500 to 1,000 feet.

Mr. Whitney, of Honolulu, who was near the spot, says: "From these great fountains to the sea flowed a rapid stream of red lava, rolling, rushing, and tumbling like a swollen river, bearing along in its current large rocks that made the lava foam as it dashed down the precipice and through the valley into the sea, surging and roaring throughout its length like a

cataract, with a power and fury perfectly indescribable. It was nothing else than a river of fire from 200 to 800 feet wide and twenty deep, with a speed varying from ten to twenty-five miles an hour. From the scene of these fire fountains, whose united length was about one mile, the river in its rush to the sea divided itself into four streams, between which it shut up men and beasts. Where it entered the sea it extended the coast-line half a mile, but this worthless accession to Hawaiian acreage was dearly purchased by the loss, for ages at least, of 4,000 acres of valuable agricultural land, and a much larger quantity of magnificent forest.

The entire southeast shore of Hawaii sank from four to six feet, which involved the destruction of several hamlets and the beautiful fringe of cocoanut trees. Though the region was very thinly peopled, 100 lives were sacrificed in this week of horrors; and from the reeling mountains, the uplifted ocean, and the fiery inundation, the terrified survivors fled into Hilo, each with a tale of woe and loss. The number of shocks of earthquake counted was 2,000 in two weeks, an average of 140 a day; but on the other side of the island the number was incalculable.

Since that time there have been several eruptions of these great Hawaiian volcanoes, but none so destructive to life and property. Only two years ago the crater of Mauna Loa was in eruption for some weeks, and travelers journeyed to the vicinity from all over the world to see the grand display of Nature's power in the fountains of lava and the blazing rivers flowing down the mountain side. The spectacle could be viewed perfectly at night from ships at sea, and from places of safety on shore.

Across the North Pacific, from Kamschatka to Alaska, is a continuous chain of craters in the Aleutian islands, forming almost a bridge over the ocean, and from Alaska down the western coasts of the two Americas is a string of the mightiest volcanoes in existence. Iceland is a seething caldron under

its eternal snows, and in a hundred places where some great, jagged cone of a volcano rises, seemingly dead and lifeless, only a fire-brand in the hand of nature may be needed to awaken it to a fury like that of which its vast lava beds, pinnacles, and craters are so eloquent.

The world's record for the extent of an eruption probably belongs to the great volcano Skaptan Jokul, in Iceland. This eruption began on June 11, 1783, having been preceded by violent earthquakes. A torrent of lava welled up into the crater, overflowed it, and ran down the sides of the cone into the channel of the Skapta river, completely drying it up. The river had occupied a rocky gorge, from 400 to 600 feet deep, and averaging 200 feet wide. This gorge was filled, a deep lake was filled, and the rock, still at white heat, flowed on into subterranean caverns. Tremendous explosions followed, throwing boulders to enormous heights. A week after the first eruption another stream of lava followed the first, debouched over a precipice into the channel of another river, and finally, at the end of two years, the lava had spread over the plains below in great lakes twelve to fifteen miles wide and a hundred feet deep. Twenty villages were destroyed by fire, and out of 50,000 inhabitants nearly 9,000 perished, either from fire or from noxious vapors.

The Skapta river branch of this lava stream was fifty miles long and in places twelve to fifteen miles wide; the other stream was forty miles long, seven miles broad, and the range of depth in each stream was from 100 to 600 feet. Professor Bischoff has called this, in quantity, the greatest eruption of the world, the lava, piled, having been estimated as of greater volume than is Mont Blanc.

Regarding the volcanoes of the United States, Mount Shasta is one of the most interesting of them. It has an altitude of 14,350 feet, towering more than a mile above its nearest neighbor. Four thousand feet of its peak are above timber line, covered with glaciers, while the mountain's base is seven-

teen miles in diameter. Shasta is almost continually showing slight evidences of its internal fires. Another of the famous cones is that of Mount Hood, standing 11,225 feet, snow-capped, and regarded as an extinct volcano.

As to the volcanic records of the great West, they may be read in the chains of mountains that stretch from Alaska 10,000 miles to Tierra del Fuego. In the giant geysers and hot springs of the Yellowstone Park are evidences of existing fires in the United States; while as to the extent of seismic disturbances of the past, the famous lava beds of Dakota, in which Captain Jack, the Modoc chief, held out against government troops till starved into submission, are volcanic areas full of mute testimony regarding nature's convulsions.

How soon, if ever, some of these volcanic areas of the United States may burst forth into fresh activity, no one can predict. If the slumbering giants should arouse themselves and shake off the rock fetters which bind their strength, the results might be terrible to contemplate. Those who dwell in the shadow of such peaks as are believed to be extinct, become indifferent to such a possible threat after many years of immunity, but such a disaster as that of St. Pierre arouses thought and directs scrutiny once more upon the ancient volcanic peaks of the Rocky Mountains and the Sierra Nevadas.

CHAPTER XXXI

SOUTH AMERICAN CITIES DESTROYED

Earthquakes Ravage the Coast Cities of Peru and the Neighboring Countries — Spanish Capitals in the New World Frequent Sufferers—Lima, Callao and Caracas Devastated—Tidal Waves Accompany the Earthquakes—Juan Fernandez Island Shaken—Fissures Engulf Men and Animals—Peculiar Effects Observed.

THE discovery of America, in 1492, brought a great accession to the number of recorded earthquakes, as South and Central America and the islands near them have furnished almost innumerable instances of the phenomena.

The first of the known earthquakes in the western hemisphere occurred in 1530, and the Gulf of Paria, with the adjacent coast of Cumana, in Venezuela, was the scene of the catastrophe. It was accompanied by a great sea-wave, the tide suddenly rising twenty-four feet, and then retiring. There were also opened in the earth several large fissures, which discharged black, fetid salt water and petroleum. A mountain near the neighboring Gulf of Caracas was split in twain, and has since remained in its cloven condition.

The coast of Peru was visited by an earthquake in the year 1586, and again in 1687. On the first occasion the shock was accompanied by a great sea-wave eighty-four feet high, which inundated the country for two leagues inland. There was still another dreadful convulsion on this coast in 1746, when the sea twice retreated and dashed in again with a tremendous wave about eighty feet high, overwhelming Lima and four other seaports. A portion of the coast sank down,

producing a new bay at Callas; and in several mountains in the neighborhood there were formed large fissures whence water and mud gushed forth. On May 24, 1751, the city of Concepcion, in Chili, was entirely swallowed up during an earthquake, and the sea rolled over its site. The ancient port was destroyed, and a new town was afterwards erected ten miles inland. The great sea-wave, which accompanied this earthquake, rolled in upon the shores of the island of Juan Fernandez, and overwhelmed a colony which had been recently established there. The coast near the ancient port of Concepcion was considerably raised on this occasion, and the high water mark now stands twenty-four feet below its former level.

The coast of Caracas and the adjacent island of Trinidad were violently convulsed in 1776, and the whole city of Cumana was reduced to ruins. The shocks were continued for upwards of a year, and were at first repeated almost hourly. There were frequent eruptions of sulphurous water from fissures in the ground, and an island in the Orinoco disappeared.

Rihamba must have stood, it would appear, almost immediately over the focus of the dreadful earthquake of February 4, 1797. This unfortunate city was situated in the district of Quito, not far from the base of the great volcano of Tunguragua. That mountain was probably the center of disturbance, and the shock was experienced with disastrous effects over a district of country extending about 120 miles from north to south and about sixty miles from east to west. Every town and village comprehended within this district was reduced to ruins. The shocks, however, were felt, though in a milder form, over a much larger area, extending upwards of 500 miles from north to south and more than 400 miles from east to west.

At Riobamba the shocks, which began at about eight o'clock in the morning, are said to have been vertical. Some faint idea may be formed of the extreme violence of this motion from the fact mentioned by Humboldt that the dead bodies of

some of the inhabitants who perished were tossed over a small river to the height of several hundred feet, and landed on an adjacent hill.

Vertical movements, so powerful and so long continued, could not fail to produce an enormous displacement of the ground, and to be very destructive to all buildings which it sustained. The soil was rent, and, as it were, torn asunder and twisted in an extraordinary manner. Several of the fissures opened and closed again; many persons were engulfed in them; but a few saved themselves by simply stretching out their arms, so that, when the fissure closed, the upper parts of their bodies were left above the ground, thus admitting of their being easily extricated. In some instances whole cavalcades of horsemen and troops of laden mules disappeared in those chasms; while some few escaped by throwing themselves back from the edge of the cleft.

The amount of simultaneous elevation and depression of the ground was in some cases as much as twelve feet; and several persons who were in the choir of one of the churches escaped by simply stepping on the pavement of the street, which was brought up to a level with the spot where they stood. Instances occurred of whole houses sinking bodily into the earth, till their roofs were fairly underground; but so little were the buildings thus engulfed injured, that their inhabitants were able still to live in them, and by the light of flambeaux to pass from room to room, the doors opening and shutting as easily as before. The people remained in them, subsisting on the provisions they had in store, for the space of two days, until they were extricated safe and sound. With the majority of the inhabitants, however, it fared otherwise. The loss of life in the city, and throughout the district most convulsed, was enormous, 40,000 persons altogether having perished.

Of Riobamba itself the ruin was complete. When Humboldt took a plan of the place after the catastrophe, he could

find nothing but heaps of stones eight or ten feet high; although the city had contained churches and convents, with many private houses several stories in height. The town of Quero was likewise entirely overthrown.

At Tacunga the ruin was nearly as thorough, not a building having been left standing save an arch in the great square, and part of a neighboring house. The churches of St. Augustin, St. Domingo, and La Merced were at the moment thronged with people hearing mass. Not one escaped alive. All were buried, along with the objects of their worship, under the ruins of their consecrated buildings. In several parts of the town and its neighborhood there were opened larger fissures in the ground, whence quantities of water poured forth. The village of St. Philip, near Tacunga, containing a school in which upwards of forty children were assembled at the time, disappeared bodily in a chasm. A great many other villages with their inhabitants were destroyed, by being either overthrown or engulfed.

Even at Quito, although so distant from the centre of the disturbance, a great deal of damage was done to the churches and other public buildings by the shock, several being wholly ruined. The private houses and other buildings of moderate height, however, were spared. The superstitious inhabitants of this fair city, having been greatly alarmed by an unwonted display of luminous meteors, had devoted the previous day to carrying in procession through their streets the graven images and relics of their saints, in the vain hope of appeasing divine wrath. They were doomed to learn by experience that these idols were powerless to protect even the consecrated edifices dedicated to their honor, and in which they were enshrined.

The Bay of Caracas was the scene of a dreadful earthquake in 1812. The city of Caracas was totally destroyed, and ten thousand of its inhabitants were buried beneath its ruins.

The shock was most severe in the northern part of the

town, nearest to the mountain of La Silla, which rises like a vast dome, with steep cliffs in the direction of the sea. The churches of the Trinity and Alta Gracia, the latter of which was more than one hundred and fifty feet high, and the nave of which was supported by pillars twelve or fifteen feet thick, were reduced to a mass of ruins not more than five or six feet high. The subsidence of the ruins was such that scarcely a vestige of pillar or column could be found. The barracks of San Carlos disappeared altogether, and a regiment of infantry, under arms to take part in a procession, was swallowed up with the exception of a few men.

Nine-tenths of the town was annihilated. The houses which had not collapsed were cracked to such an extent that their occupants did not dare to re-enter them. To the estimate of 10,000 victims caused by the earthquake, must be added the many who succumbed, weeks and months afterward, for want of food and relief. The night of Holy Thursday to Good Friday presented the most lamentable spectacle of desolation and woe which can well be conceived. The thick layer of dust, which, ascending from the ruins, obscured the air like mist, had again settled on the ground; the earthquake shocks had ceased, and the night was calm and clear. A nearly full moon lighted up the scene, and the aspect of the sky was in striking contrast with that of a land strewn with corpses and ruins.

Mothers might be seen running about with their children whom they were vainly trying to recall to life. Distracted families were searching for a brother, a husband, or some other relative, whose fate was unknown to them, but who, they hoped, might be discovered in the crowd. The injured lying half buried beneath the ruins were making piteous appeals for help, and over 2,000 were extricated. Never did human kindness reveal itself in a more touching and ingenious fashion than in the efforts made to relieve the sufferers whose cries were so heart-breaking to hear. There were no tools to clear

away the rubbish, and the work of relief had to be performed with the bare hands.

The injured and the sick who had escaped from the hospitals were carried to the banks of the river Guayra, where their only shelter was the foliage of the trees. The beds, the lint for binding up wounds, the surgical instruments, the medicines and all the objects of immediate necessity were buried beneath the ruins, and for the first few days there was a scarcity of everything, even of food. Water was also very scarce inside the town, as the shock had broken up the conduits of the fountains and the upheaval had blocked the springs that fed them. In order to get water it was necessary to descend to the river Guayra, which had risen to a great height, and there were very few vessels left to get it in.

It was necessary, also, to dispose of the dead with all dispatch, and in the impossibility of giving decent burial to so many thousand corpses, detachments of men were told off to burn them. Funeral pyres were erected between the heaps of ruins, and the ceremony lasted several days.

The fierce shocks which had in less than a minute occasioned such great disasters could not be expected to have confined their destructive effects to one narrow zone of the continent, and these extended to a great part of Venezuela, all along the coast and specially among the mountains inland. The towns of La Guayra, Mayquetia, Antimano, Baruta, La Vega, San Felipe, and Merida were entirely destroyed, the number of deaths exceeding 5,000 at La Guayra and San Felipe.

In November, 1822, the coast of Chile began to be violently convulsed by a succession of shocks, the first of which was of great severity. The heavings of the earth were quite perceptible to the eye. The sea rose and fell to a great extent in the harbor of Valparaiso, and the ships appeared as if they were first rapidly forced through the water, and then struck on the ground. The town of Valparaiso and several others were

completely overthrown. Sounds like those produced by the escape of steam accompanied this earthquake, and it was felt throughout a distance of 1,200 miles along the coast, a portion of which—extending to about 100 miles—was permanently raised to a height varying from two to four feet. At Quintero the elevation was four feet, and at Valparaiso three feet; but about a mile inland from the latter place the elevation was as much as six or seven feet; while the whole surface raised is estimated at nearly 100,000 square miles.

The year 1868 proved very disastrous in South America. On the 13th of August of that year a series of shocks commenced which were felt over a large extent of country, stretching from Ibarra on the northwestern border of Ecuador to Cabija on the coast of Bolivia, a distance of about 1,400 miles. The effects were most severe about the southern portion of the Peruvian coast, where the towns of Iquique, Arica, Tacna, Port Ilay, Arequipa, Pisco, and several others were destroyed, and in the northern parts of Ecuador, where the town of Ibarra was overthrown, burying nearly the whole of the inhabitants under its ruins. A small town in the same quarter, named Cotocachi, was engulfed, and its site is now occupied by a lake. The total loss of lives is estimated at upward of 20,000.

On May 15, 1875, earthquake shocks of a serious character were experienced over large areas of Chile. At Valparaiso the shock lasted for forty-two seconds, with a vertical motion, so that the ground danced under foot. Two churches and many buildings were damaged. Another earthquake occurred at Valparaiso, July 8, when there were six shocks in succession. The inhabitants took refuge in the streets, several people were killed, and much damage was done to property.

About the middle of May, 1875, a most disastrous earthquake visited New Granada, the region of its influence extending over an area 500 miles in width. It was first felt perceptibly at Bogota; thence it traveled north, gaining inten-

sity as it went, until it reached the southeast boundary line of Magdalena, where its work of destruction began. It traveled along the line of the Andes, destroying, in whole or in part, the cities of Cucuta, San Antonio, and Santiago, and causing the death of about 16,000 persons. On the evening of May 17, a strange rumbling sound was heard beneath the ground, but no shock was felt. This premonitory symptom was followed on the morning of the 18th by a terrific shock. "It suddenly shook down the walls of houses, tumbled down churches, and the principal buildings, burying the citizens in the ruins." Another shock completed the work of destruction, and shocks at intervals occurred for two days. "To add to the horrors of the calamity, the Lobotera volcano, in front of Santiago, suddenly began to shoot out lava in immense quantities in the form of incandescent balls of fire, which poured into the city and set fire to many buildings."

On the evening of April 12, 1878, a severe earthquake occurred in Venezuela which destroyed a considerable portion of the town of Cua. Immediately preceding the shock the sky was clear and the moon in perfect brightness. It lasted only two seconds, but in that time the center of the town, which was built on a slight elevation, was laid in ruins. The soil burst at several places, giving issue to water strongly impregnated with poisonous substances.

The Isthmus of Panama was the scene of a succession of earthquakes in September, 1882, which, although the loss of life was small, were exceedingly destructive to property. On the morning of September 7, the inhabitants of Panama were roused from their beds by the occurrence of one of the longest and most severe shocks ever experienced in that earthquake-vexed region. Preceded by a hollow rumbling noise, the first shock lasted nearly thirty seconds, during which it did great damage to buildings. It was severely felt on board ship, passengers declaring that the vessel seemed as if it were lifted bodily from the sea and then allowed to fall back.

Its effects on the Panama railway were very marked. The stone abutments of several of the bridges were cracked, and the earthworks sank in half a dozen places. In other places the rails were curved as if they had been intentionally bent. Other shocks less severe followed the first, until at 11:30, another sharp shock alarmed the whole city, and drove the inhabitants at once from their houses into the squares. This earthquake was also severely felt at Colon, where it lasted for fully a minute, moving many buildings from their foundations, and creating intense alarm. A deep fissure, 400 yards in length, was opened in the earth.

To what extent this tendency to earthquake shocks threatens the proposed Panama Canal, it is difficult to say. Beyond question a great earthquake would do immense damage to such a channel and its lock gates, but the advocates of the Panama route argue with apparent truth that even so it has a great advantage over the Nicaragua route. In the latter, volcanoes are numerous, and eruptions not infrequent. Lake Nicaragua itself, through which the canal route passes, has in it several islands which are but volcanic peaks raised above the water, and the whole region is subject to disturbances from the interior of the earth.

CHAPTER XXXI

EARTHQUAKES AND VOLCANOES IN CENTRAL AMERICA AND MEXICO

A Region Frequently Disturbed by Subterranean Forces—Guatemala a Fated City—A Lake Eruption in Honduras Described by a Great Painter—City of San Jose Destroyed—Inhabitants Leave the Vicinity to Wander as Beggars—Disturbances on the Route of the Proposed Nicaraguan Canal—San Salvador is Shaken—Mexican Cities Suffer.

CENTRAL AMERICA is continually being disturbed by subterranean forces. Around the deep bays of this vast and splendid region, upon the shores laved by the waters of the Pacific, and also about the large inland lakes, rise, like an army of giants, a number of lofty volcanoes. Whilst most of them are wrapped in slumber which has lasted for centuries, others occasionally roar and groan as if in order to keep themselves awake, and to watch well over their sleeping companions. The fire which consumes their entrails extends far beneath the soil, and often causes it to tremble. Three times within thirty years the town of Guatemala has been destroyed by earthquakes, and there is not in all Guatemala, Honduras, or any other state of Central America a single coast which has not been visited by one or more violent subterranean shocks. When the earthquakes occur in remote regions, far from the habitations of men, in the midst of virgin forests, or in the vicinity of large lakes, they give rise to very singular phenomena.

In 1856, a painter, entrusted with an official mission in Honduras, witnessed an event of this kind, and though he sought

to conceal his identity, he was generally believed to be Herr Heine, the well-known painter and explorer of Central America. Upon the day in question he was sailing across a large lagoon named Criba, some twenty miles broad, the weather being calm, and the sun shining brilliantly. After having secured his boat to the shore, he had landed at the entrance to a beautiful little village commanding a view of the plain dotted with houses and with stately trees. Upon the opposite shore extended the forest, with the sea in the far distance. The chief inhabitant of the village having invited Herr Heine and his companions to come in and rest, the whole party were seated beneath the veranda of the house, engaged in pleasant conversation. Suddenly, a loud noise was heard in the forest. The birds flew off in terror; the cocoanut palms bent and writhed as if in panic, and large branches of them snapped off; shrubs were torn up from the ground and carried across the lake. All this was the effect of a whirlwind traveling through space from south to north.

The whole affair lasted only a few seconds, and calm was re-established in Nature as suddenly as it had been disturbed. Conversation, of course, then turned upon the phenomenon just witnessed, and the natives maintained that atmospheric disturbances of this kind are the forerunners of severe earthquakes or violent volcanic eruptions; some of them declaring that a disaster of this character had doubtless just occurred somewhere. The host, an elderly man much esteemed in the district for his knowledge, went on to describe many such catastrophes which he himself had witnessed. He spoke more particularly of the eruption of the volcano of Coseguina, in Nicaragua, which had been preceded by a fierce whirlwind, which had been so strong that it carried pieces of rock and ashes to a distance of nearly a mile. The captain of a large sailing vessel had told him that upon the following day, when more than 100 miles from the coast, he had found the sea covered with pumice-stone, and had experienced great difficulty in

threading a way for his vessel through these blocks of volcanic stone which were floating upon the surface like icebergs.

Everyone, including the European, had his story to tell, and while the party were still in conversation, a terrible noise like thunder was heard, and the earth began to quake. At first the shocks were felt to be rising upward, but after a few seconds they became transformed into undulations traveling northward, just as the sudden whirlwind had done. The soil undulated like the surface of a stormy sea, and the trees were rocked to and fro so violently that the topmost branches of the palms came in contact with the ground and snapped off. The traveler and his friends, believing themselves to be out of danger, were able to follow with ever-increasing interest the rapid phases of the disturbance, when a strange and alarming phenomenon attracted their notice.

"Our attention was called," relates Herr Heine, "to a terrible commotion in the direction of the lagoon, but I cannot express what I then saw, I did not know if I was awake or a prey to a nightmare; whether I was in the world of reality or in the world of spirits."

The water of the lagoon disappeared as if it were engulfed in a sort of a subterranean cavern, or rather, it turned over upon itself, so that from the shore to the center of the lake the bed was quite empty. But in a few moments the water reappeared, and mounting toward the center of the enormous basin, it formed an immense column, which, roaring and flecked with foam, reached so high that it intercepted the sunlight. Suddenly, the column of water collapsed with a noise as of thunder, and the foaming waves dashed toward the shore. Herr Heine and his companions would have perished if they had not been standing upon elevated ground, and, as it was, they could not restrain an exclamation of horror as they saw this mass of water, like solid rock, rolling along the plain, carrying trees, large stones, and whole fields before it.

"I saw all that without at first thinking of our own fate,"

recites Herr Heine, "and I think that the greatness of the peril which threatened the whole country made me indifferent as to the fate of myself and my companions. In any case, when I saw my familiar companion, Carib, nearly carried off, I remained indifferent, and it was only after two others of my followers, Manuel and Michel, had had very narrow escapes, that I succeeded in shaking off my apathy, and going to their assistance."

When the travelers, whose boat had disappeared, started for the town of San Jose, whence they had come in the morning, they were able to judge for themselves as to the extent of the disaster. All the country which they had passed through had been laid waste. Large masses of rock had been detached from the mountains, and obstructed the course of streams which had overflown their banks or changed their course. Whole villages had been destroyed, and in all directions arose the lamentations of the unfortunate inhabitants. The region over which the waters of the lagoon had been carried was no longer to be identified as the same, covered as it was with debris of every kind, and with a thick layer of sand and rock.

When they started in the morning, the travelers had left San Jose prosperous and full of cheerful stir, but when they returned at night they found it in ruins and almost deserted. The earthquake had overthrown all the houses with the exception of about twenty, and these were very badly damaged.

All the buildings in solid masonry, including the massive church, were heaps of ruins; and most of the inhabitants had perished. The Indians who were prowling in the outskirts of the town took advantage of the catastrophe to carry off all they could from the houses which were still standing and from the ruins of the others. The agility with which these Indians move about among the ruins and escape the falling walls is something wonderful, and they never hesitate to risk their lives for a very trifle.

In Central America disasters of this kind invariably cause

many of the inhabitants to emigrate. Men, women, and children form themselves into groups, and travel through the country. They set the drama in which they have taken part to music, and they journey from one village to another, singing the rude verses they have composed, and then sending the hat around. After they have visited the whole of their own country, they cross into the neighboring state, where they are also assured of a profitable tour. Thus for more than a year Honduras and Nicaragua were visited by bands of homeless victims, chanting in monotone the eruption of Lake Criba and the terrible catastrophe of San Jose.

The western half of Nicaragua, including the basin in which lie Lakes Managua and Nicaragua, is a volcanic center, including some of the largest of the twenty-five active cones and craters of Central America. Stretching from northwest to southeast, the string of craters beginning with Coseguina and Viejo reaches well into the lake basin. At the northern end of Lake Managua stands Momotombo, while from the lake itself rises Momotombito. On the northwestern shore of Lake Nicaragua lies the volcano Mombocho, while between the two lakes is the volcano Masaya. Near the center of Lake Nicaragua are the two volcanoes of Madera and Omotepe.

Since 1835 there have been six eruptions in Nicaragua, one of them, in 1883, being an outbreak in the crater of Omotepe in Lake Nicaragua, the route of the proposed Nicaraguan canal. The Coseguina eruption, the uproar of which was heard more than 1,000 miles away, threw the headland upon which it stands 787 feet out into the sea, and rained ashes and pumice-stone over an area estimated at 1,200,000 square miles.

Like all Spanish towns in America, San Salvador, capital of the republic of that name, covers a large area in proportion to its population. The houses are low, none of them having more than one story, while the walls are very thick in order to be capable of resisting earthquakes. Inside each house of the better class is a courtyard, planted with trees, generally

having a fountain in the center. It was to these spacious courtyards that, in 1854, many of the inhabitants of San Salvador owed their lives, as they found in them a refuge from their falling houses. On the night of April 16, the city was reduced to a heap of ruins, only a single public building and very few private ones having been left standing. Nearly 5,000 of the inhabitants were buried in the ruins. There was a premonitory shock before the great one, and many took heed of its warning and escaped to places of safety, otherwise the loss of life would have been even more terrible.

Guatemala was visited with a series of almost daily tremors from the middle of April to the middle of June, 1870. The most severe shock was on the 12th of June and was sufficiently powerful to overthrow many buildings.

The republic of San Salvador was again visited by a great earthquake in October, 1878. Many towns, such as Incuapa, Guadeloupe, and Santiago de Marie, were almost totally destroyed, and many lives were lost. The shock causing the most damage had at first a kind of oscillatory movement lasting over forty seconds and ending in a general upheaval of the earth; the result being that solid walls, arches, and strongly braced roofs, were broken and severed like pipe-stems. In the vicinity of Incuapa a number of villages disappeared entirely.

The mountainous region of Mexico is highly volcanic, and earthquakes are of frequent occurrence. Very few of them, however, in the historic period, have occasioned great loss of either life or property. One of the most disastrous occurred in January, 1835, when the town of Acapulco was totally destroyed. In April, ten years later, the City of Mexico was much shaken. Considerable damage was done to buildings, especially to churches and other edifices of large size, several of which were reduced to ruins. The loss of life was limited to less than twenty. Probably the most serious convulsion the country has experienced was in 1858, when shocks were felt over almost all the republic, causing many deaths, and destroy-

ing much property. Over 100 people lost their lives on May 11 and 12, 1870, when the city of Oaxaca was visited by a succession of severe shocks, which tore down many buildings. Since this time Mexico has been free from convulsions of any great magnitude, although slight earth tremors are of frequent occurrence in different parts of the country.

Mexican volcanoes, likewise, are famous for their size, though of late years no great eruptions have occurred. There are many isolated peaks, all of volcanic origin, of which Orizaba, with a height of 18,314 feet, and Popocatepetl, 17,300 feet, the most renowned, are both active. The latter has one crater 5,000 feet in diameter. From the summit the Pacific Ocean and the Gulf of Mexico are both visible.

This crater has not erupted for many years, but in former times it threw its ashes a distance of sixty miles. One can descend into its depths fully 1,000 feet, and view its sulphur walls, hung with stalactites of ice, or see its columns of vapor spouting here and there through crevices that extend down into the interior of the earth. In the ancient Aztec and Toltec mythology of Mexico, this was the Hell of Masaya.

Nowadays great sulphur mines on the peak bring profit to the owners, and ice is quarried from the same vicinity to supply the neighboring city of Puebla.

CHAPTER XXXIII

CHARLESTON, GALVESTON JOHNSTOWN — OUR AMERICAN DISASTERS

Earthquake Shock in South Carolina—Many Lives Lost in the Riven City — Flames Follow the Convulsion — Galveston Smitten by Tidal Wave and Hurricane—Thousands Die in Flood and Shattered Buildings—The Gulf Coast Desolated—Johnstown, Pennsylvania, Swept by Water from a Bursting Reservoir—Scenes of Horror—Earthquakes on the California Coast.

OUR own land has experienced very few great convulsions of nature. True, there have been frequent earthshocks in California, and all along the Western coast, and occasionally slight tremors have been felt in other sections, but the damage done to life and property has been in almost every instance comparatively light. The only really great disaster of this class that has been recorded in the United States since the white man first set his foot upon the soil, occurred in 1886, when the partial destruction of Charleston, South Carolina, was accomplished by earthquake and fire.

On the morning of August 28, a slight shock was felt throughout North and South Carolina, and in portions of Georgia. It was evidently a warning of the calamity to follow, but naturally was not so recognized, and no particular attention was paid to it. But on the night of August 31, at about ten o'clock, the city was rent asunder by a great shock which swept over it, carrying death and destruction in its path.

During the night there were ten distinct shocks, but they were only the subsiding of the earth-waves. The disaster was wrought by the first. Its force may be inferred from the fact

that the whole area of the country between the Atlantic coast and the Mississippi river, and as far to the north as Milwaukee, felt its power to a greater or lesser degree.

Charleston, however, was the special victim of this elemental destruction. The city was in ruins, two-thirds of its houses were uninhabitable. Railroads and telegraph lines were torn up and destroyed. Fires burst forth in different sections of the city, adding to the horror of the panic-stricken people. Forty lives were lost, over 100 seriously wounded were reported, and property valued at nearly $5,000,000 was destroyed.

A writer in the Charleston News and Courier gave a vivid account of the catastrophe. Extracts from his story follow:

"It is not given to many men to look in the face of the destroyer and yet live; but it is little to say that the group of strong men who shared the experiences of that awful night will carry with them the recollection of it to their dying day None expected to escape. A sudden rush was simultaneously made for the open air, but before the door was reached all reeled together to the tottering wall and stopped, feeling that hope was vain; that it was only a question of death within the building or without, to be buried by the sinking roof or crushed by the toppling walls. Then the uproar slowly died away in seeming distance.

"The earth was still, and O, the blessed relief of that stillness! But how rudely the silence was broken! As we dashed down the stairway and out into the street, already on every side arose the shrieks, the cries of pain and fear, the prayers and wailings of terrified women and children, commingling with the hoarse shouts of excited men. Out in the street the air was filled with a whitish cloud of dry, stifling dust, through which the gaslights flickered dimly. On every side were hurrying forms of men and women, bareheaded, partly dressed, many of whom were crazed with fear and excitement. Here a woman is supported, half fainting, in the arms of her hus-

band, who vainly tries to soothe her while he carries her to the open space at the street corner, where present safety seems assured; there a woman lies on the pavement with upturned face and outstretched limbs, and the crowd passes her by, not pausing to see whether she be alive or dead.

"A sudden light flares through a window overlooking the street, it becomes momentarily brighter, and the cry of fire resounds from the multitude. A rush is made toward the spot. A man is seen through the flames trying to escape. But at this moment, somewhere—out at sea, overhead, deep in the ground—is heard again the low, ominous roll which is already too well known to be mistaken. It grows louder and nearer, like the growl of a wild beast swiftly approaching his prey. All is forgotten in the frenzied rush for the open space, where alone there is hope of security, faint though it be.

"The tall buildings on either hand blot out the skies and stars and seem to overhang every foot of ground between them; their shattered cornices and coping, the tops of their frowning walls, appear piled from both sides to the center of the street. It seems that a touch would now send the shattered masses left standing, down upon the people below, who look up to them and shrink together as the tremor of the earthquake again passes under them, and the mysterious reverberations swell and roll along, like some infernal drumbeat summoning them to die. It passes away, and again is experienced the blessed feeling of deliverance from impending calamity, which it may well be believed evokes a mute but earnest offering of mingled prayer and thanksgiving from every heart in the throng."

One of the most awful tragedies of modern times visited Galveston, Texas, on Saturday, September 8, 1900. A tempest, so terrible that no words can adequately describe its intensity, and a flood which swept over the city like a raging sea, left death and ruin behind it. Sixty-seven blocks in a thickly populated section of the city were devastated, and not

a house withstood the storm. The few that might have held together if dependent upon their own construction and foundations, were buried beneath the stream of buildings and wreckage that rushed west from the Gulf of Mexico, demolishing hundreds of homes and carrying the unfortunate inmates to their death.

A terrific wind, which attained a velocity of from 100 to 120 miles an hour, blew the debris inland and piled it in a hill ranging from ten to twenty feet high. Beneath this long ridge many hundred men, women, and children were buried, and cattle, horses and dogs, and other animals, were piled together in one confused mass.

The principal work of destruction was completed in six short hours, beginning at three o'clock in the afternoon and ending at nine o'clock the same night. In that brief time the accumulations of many a life time were swept away, thousands of lives went out, and the dismal Sunday morning following the catastrophe found a stricken population paralyzed and helpless.

Every hour the situation changed for the worse, and the mind became dazed midst the gruesome scenes. The bodies of human beings, the carcasses of animals, were strewn on every hand. The bay was filled with them. Like jelly-fish, the corpses were swept with the changing tide. Here a face protruded above the water; there the foot of a child; here the long, silken tresses of a young girl; there a tiny hand, and just beneath the glassy surface of the water full outlines of bodies might be seen. Such scenes drove men and women to desperation and insanity. A number sought freedom in the death which they fought so stoutly. A young girl, who survived to find mother, father and sisters dead, crept far out on the wreckage and threw herself into the bay.

During the storm and afterward a great deal of looting was done. Many stores had been closed, their owners leaving to look after their families. The wind forced in the windows,

and left the goods prey for the marauders. Ghouls stripped the dead bodies of jewelry and articles of value. Captain Rafferty, commanding the United States troops in the city, was asked for aid, and he sent seventy men, the remnant of a battery of artillery, to do police duty. Three regiments were sent from Houston and the city was placed under martial law. Hundreds of desperate men roamed the streets, crazed with liquor, which many had drunk because nothing else could be obtained with which to quench their thirst. Numberless bottles and boxes of intoxicating beverages were scattered about and easy to obtain.

Robbery and rioting continued during the night, and as the town was in darkness, the effort of the authorities to control the lawless element was not entirely successful. Big bonfires were built at various places from heaps of rubbish to enable troops the better to see where watchfulness was needed. Reports said that more than 100 looters and vandals were slain in the city and along the island beach.

The most rigid enforcement of martial law was not able to suppress robbery entirely. Thirty-three negroes, with effects taken from dead bodies, were tried by court-martial. They were convicted and ordered to be shot. One negro had twenty-three human fingers with rings on them in his pocket.

An eye-witness of the awful horror said: "I was going to take the train at midnight, and was at the station when the worst of the storm came up. There were 150 people in the depot, and we all remained there for nine hours. The back part of the building blew in Sunday morning and I returned to the Tremont house. The streets were literally filled with dead and dying people. The Sisters' Orphan Hospital was a terrible scene. I saw there over ninety dead children and eleven dead Sisters. We took the steamer Allen Charlotte across the bay, up Buffalo bay, over to Houston in the morning, and I saw fully fifty dead bodies floating in the water. I saw one dray with sixty-four dead bodies being drawn by four

horses to the wharves, where the bodies were unloaded on a tug and taken out in the gulf for burial."

Mr. Wortham, ex-secretary of state, after an inspection of the scene, made this statement: "The situation at Galveston beggars description. Fully seventy-five per cent. of the business portion of the town is wrecked, and the same percentage of damage is to be found in the residence district. Along the wharf front great ocean steamers have bodily dumped themselves on the big piers, and lie there, great masses of iron and wood that even fire cannot totally destroy. The great warehouses along the water front are smashed in on one side, unroofed and gutted throughout their length; their contents either piled in heaps or along the streets. Small tugs and sailboats have jammed themselves into buildings, where they were landed by the incoming waves and left by the receding waters.

"Houses are packed and jammed in great confusing masses in all the streets. Great piles of human bodies, dead animals, rotting vegetation, household furniture, and fragments of the houses themselves, are piled in confused heaps right in the main streets of the city. Along the Gulf front human bodies are floating around like cordwood."

As time passed on the terrible truth was pressed home on the minds of the people that the mortality by the storm had possibly reached 8,000, or nearly one-fourth of the entire population. The exact number will never be known, and no list of the dead could be accurately made out, for the terrible waters carried to sea and washed on distant and lonely shores many of the bodies. The unknown dead of the Galveston horror will forever far surpass the number of those who are known to have perished in that awful night, when the tempest raged and the storm was on the sea, piling the waters to unprecedented heights on Galveston island.

One of the great catastrophes of the century in the United States was the flood that devastated the Conemaugh valley in

Pennsylvania, on May 31, 1889. Though the amount of property destroyed was over $10,000,000 worth, this was the slightest element of loss. That which makes the Johnstown flood so exceptional is the terrible fact that it swept away half as many lives as did the battle of Gettysburg, one of the bloodiest of the Civil War, and transformed a rich and prosperous valley for more than twenty miles into a vast charnel-house.

Johnstown is located on the Pennsylvania Railroad, seventy-eight miles southeast of Pittsburg, and was at the time mentioned a city of about 28,000 inhabitants. It was the most important of the chain of boroughs annihilated; and as such has given the popular title by which the disaster is known. The Conemaugh valley has long been famous for the beauty of its scenery. Lying on the lower western slope of the Alleghany mountains, the valley, enclosed between lofty hills, resembles in a general way an open curved hook, running from South Fork, where the inundation first made itself felt, in a southwesterly direction to Johnstown, and thence sixteen miles northwest to New Florence, where the more terrible effects of the flood ended, though its devastation did not entirely cease at that point.

A lateral valley extends about six miles from South Fork in a southeasterly direction, at the head of which was located the Conemaugh Lake reservoir, owned and used as a summer resort by the South Fork Hunting and Fishing Club of Pittsburg. In altitude this lake was about 275 feet above the Johnstown level, and it was about two and one-half miles long and one and one-half miles in its greatest width. In many places it was 100 feet deep, and it held a larger volume of water than any other reservoir in the United States. The dam that restrained the waters was nearly 1,000 feet in length, 110 feet in height, ninety feet thick at the base, and twenty-five feet wide at the top, which was used as a driveway.. For ten years or more this dam was believed to be a standing menace to the Conemaugh valley in times of freshet, though

fully equal to all ordinary emergencies. With a dam which was admitted to be structurally weak and with insufficient means of discharging a surplus volume, it was feared that it was only a matter of time before such a reservoir, situated in a region notorious for its freshets, would yield to the enormous pressure and send down its resistless waters like an avalanche to devastate the valley.

This is precisely what it did do. A break came at three o'clock in the afternoon of May 31, caused by protracted rains, which raised the level of the lake. Men were at once put to work to open a sluice-way to ease the pressure, but all attempts were in vain. Two hours before the break came, the threatened danger had been reported in Johnstown, but little attention was paid to it, on the ground that similar alarms had previously proved ill-founded. There is no question that ample warning was given and that all the people in the valley could have escaped had they acted promptly.

When the center of the dam yielded at three o'clock, it did so in a break of 300 feet wide. Trees and rocks were hurled high in the air, and the vast, boiling flood rushed down the ravine like an arrow from a bow. It took one hour to empty the reservoir. In less than five minutes the flood reached South Fork, and thence, changing the direction of its rush, swept through the valley of the Conemaugh. With the procession of the deluge, trees, logs, debris of buildings, rocks, railroad iron, and the indescribable mass of drift were more and more compacted for battering power; and what the advance bore of the flood spared, the mass in the rear, made up of countless battering rams, destroyed.

The distance from Conemaugh lake to Johnstown, something over eighteen miles, was traversed in about seven minutes; and here the loss of life and the damage to property was simply appalling. Survivors who passed through the experience safely declare its horrors to have been far beyond the power of words to narrate. After the most thorough possible

CHAPTER XXXIV

ST. PIERRE, MARTINIQUE, ANNIHILATED BY A VOLCANO

Fifty Thousand Men, Women and Children Slain in an Instant—The Island Capital Obliterated—Molten Fire and Suffocating Gases Rob Multitudes of Life—Death Reigns in the Streets of the Stricken City—The Governor and Foreign Consuls Die at their Posts of Duty—Burst of Flame from Mount Pelee Completes the Ruin—No Escape for the Hapless Residents in the Fated Town—Scenes of Suffering Described—St. Pierre the Pompeii of Today—Desolation over All—Few Left to Tell the Tale of the Morning of Disaster.

BEHOLD a peaceful city in the Caribbean sea, beautiful with the luxuriant vegetation of a tropic isle, happy as the carefree dwellers in such a spot may well be, at ease with the comforts of climate and the natural products which make severe labor unnecessary in these sea-girt colonies. Rising from the waterfront to the hillsides that lead back toward the slopes of Mount Pelee, St. Pierre, metropolis of the French island of Martinique, sits in picturesque languor, the blue waves of the Caribbean murmuring on the beaches, the verdure-clad ridges of the mountain range forming a background of greenery for the charming picture. Palms shade the narrow, clean, white, paved streets; trade goes on at the wharves; the people visit in social gaiety, dressed in white or bright-colored garments, as is the fashion in these islands, where somberness seldom rules; all the forms of life are cheerful, light-hearted, even thoughtless.

Suddenly a thrall of black despair is cast over the happy island. The city of pleasure becomes one great tomb. Of its 30,000 men, women and children, all but a few are slain. The Angel of Death has spread his pall over them, a fiery breath has smitten them, and they have fallen as dry stubble before the sweep of flame. A city is dead. An island is desolate. A world is grief-stricken.

And what was the awful power of evil that robbed of life 50,000 in city and neighboring villages almost in a moment? It was this verdure-clad Mount Pelee, their familiar sentinel, in the shade of whose sheltering palms they had built their summer resorts or found their innocent pleasures. It was this shadowing summit, now suddenly become a fiery vent through which earth's artilleries blazed forth their terrible volleys of molten projectiles, lava masses, huge drifts of ashes, and clouds of flaming, noxious, gaseous emanations to suffocate every living thing. Nothing could withstand such a bombardment from the exhaustless magazines within the vast chambers of the planet, no longer kindly Mother Earth, benign in the beauty of May-time, but cruel, relentless, merciless alike to all.

St. Pierre and the island of Martinique are no strangers to destructive earthquakes and volcanic eruptions. In August, 1767, an earthquake killed 1,600 persons in St. Pierre. In 1851 Mount Pelee threatened the city with destruction. St. Pierre was practically destroyed once before, in August, 1891, by the great hurricane which swept over the islands. The harbor of St. Pierre has been a famous one for centuries. It was off this harbor on April 12, 1782, that Admiral Rodney's fleet defeated the French squadron under the Comte de Grasse and wrested the West Indies from France.

St. Pierre was the largest town and the commercial center of the island. It was the largest town in the French West Indies, and was well built and prosperous. It had a population of about 30,000. It was divided into two parts, known as the upper and lower towns. The lower town was compact with

narrow streets, and unhealthy. The upper town was cleaner, healthier, and handsomely laid out. There was in the upper town a botanical garden and an old Catholic college, as well as a fine hospital.

Mount Pelee, the largest of the group of volcanic mountains, is about 4,400 feet high. It had long been inactive as a volcano, although in August, 1851, it had a violent eruption. It is in the northwestern end of the island, and near the foot of its western slope, fronting the bay, St. Pierre was built.

The Consuls resident at St. Pierre were: For the United States, T. T. Prentis; Great Britain, J. Japp; Denmark, M. E. S. Meyer; Italy, P. Plissonneau; Mexico, E. Dupie; Sweden and Norway, Gustave Borde. There were four banks in the city—the Banque de la Martinique, Banque Transatlantique, Colonial Bank of London, and the Crédit Foncier Colonial. There were sixteen commission merchants, twelve dry-goods stores, twenty-two provision dealers, twenty-six rum manufacturers, eleven colonial produce merchants, four brokers, and two hardware dealers.

The whole area of the island, near 400 square miles, is mountainous. Besides Mount Pelee, there are, further south and about midway of the oval, the three crests of Courbet, and all along the great ridge are the black and ragged cones of old volcanoes. In the section south of the deep bay there are two less elevated and more irregular ridges, one running southeast and terminating in the Piton Vauclin, and the other extending westward and presenting to view on the coast Mounts Caraibe and Constant.

The mountainous interior is torn and gashed with ancient earthquake upheavals, and there are perpendicular cliffs, deep clefts and gorges, black holes filled with water, and swift torrents dashing over precipices and falling into caverns—in a word, all the fantastic savagery of volcanic scenery, but the whole covered with the rich verdure of the tropics.

The total population of the island was reckoned at 175,000,

of whom 10,000 were whites, 15,000 of Asiatic origin, and 150,000 blacks of all shades from ebony to light octoroon.

Martinique has two interesting claims to distinction in that the Empress Josephine was born there and that Mme. de Maintenon passed her girlhood on the island as Franciose d'Aubigne. At Fort de France there is a marble statue of the Empress Josephine.

It was just before eight o'clock on the morning of Thursday, May 8, 1902, that the lava and gases of the crater of Mount Pelee burst their bounds and bore destruction to the fated city. Within thirty seconds perhaps 50,000 persons were killed, and the streets of St. Pierre were heaped with dead bodies, soon to be incinerated or buried in the ashes that fell from the fountain of flame. Within ten minutes the city itself had disappeared in a whirling flame vomited from the mountain, though for some hours the inflammable portions of the buildings continued to burn, until all was consumed that could be. The volcano whose ancient crater for more than fifty years had been occupied by a quiet lake in which picnic parties bathed, discharged a torrent of fiery mud, which rolled toward the sea, engulfing everything before it. The city was no more.

St. Pierre was destroyed, not by lava streams and not by showers of red-hot rocks, but by one all-consuming blast of suffocating, poisonous, burning gases. Death came to the inhabitants instantly. It was not a matter of hours or minutes. It was a matter of seconds. They did not burn to death. They died by breathing flame and their bodies were burned afterward. It is not merely true that no person inside the limits of the town escaped, but it is probably a literal fact that no person lived long enough to take two steps toward escape. These facts will go on record as the most astounding in the history of human catastrophes.

The manner of the annihilation of St. Pierre is unique in the history of the world. Pompeii was not a parallel, for Pompeii was eaten up by demoniac rivers of lava, and lava

became its tomb. But where St. Pierre once stood there is not even a lava bed now. The city is gone from the earth.

The half-dead victims who escaped on the Roddam or were brought away by the Suchet, talked of a "hurricane of flame" that had come upon them. That phrase was no figure of speech, but a literal statement of what happened.

When the first rescue parties reached the scene they found bodies lying in the streets of the city—or rather on the ground where streets once were, for in many places it was impossible to trace the line between streets and building sites—to which death came so suddenly that the smiles on the faces did not have time to change to the lines of agony.

That does not mean death by burning, though the bodies had been charred and half-consumed, nor does it mean suffocation, for suffocation is slow. It can mean only that the bath of burning fumes into which the city was plunged affected the victims like a terribly virulent poison when the first whiff of the gases entered their lungs.

There were many of the victims who died with their hands to their mouths. That one motion of the arm was probably the only one that they made before they became unconscious. Others fell to their faces and died with their lips pressed into the earth. There was no time to run, perhaps no time even to cry out, no time to breathe a prayer. It was as St. Pierre had been just dipped into an immense white-hot furnace and then set out to cool. Mount Pelee went sputtering on, but that made no longer any difference. In the city all life was destroyed.

Every combustible thing was burned. Animal bodies, full of moisture, glowed awhile and then remained charred wrecks. Wood and other easily combustible things burned to ashes. On the ground lay the bodies, amidst heaps of hot mud, heaps of gleaming ashes and piles of volcanic stones. That was all.

That St. Pierre and the strip of coast to the north and south of it were burned in an instant was probably due to the first

break in the mountain coming on its western side and immediately above them, though the direction of the wind may have had a little to do with it. In this way one can understand how the mountain resort of Morne Rouge, where about 600 people were staying, escaped annihilation. Rocks and dust and boiling mud fell upon it, no doubt harming it, but they did not destroy it, for it was out of the pathway of the first awful blast.

For days after this most awful of blasts, beginning indeed immediately after the first explosion, Mount Pelee continued sending down lava streams in many directions. They filled the ravines and followed river courses and made their way to the sea. They did great destruction, but most of the inhabitants in their course had some chance at least to escape.

From Le Precheur around the northern end of the island, to Grande Riviere, Macouba, and Grande Anse, directly across the island from St. Pierre, the lava was flowing. Great crevasses opened from time to time in the hills. The earth undulated like waves. Rivers were thrown out of their courses by the change in land levels. In some places they submerged the land and formed lakes. In other places they were licked up by the lava that flowed on them and turned them to steam.

Constant rumblings, thunder and lightning storms made the surroundings so terrible that many persons actually died of fright.

The West Indian newspapers printed just before the day of the great eruption, and received in foreign countries after the catastrophe, serve to give a graphic picture of the situation in St. Pierre as it was before the outer world knew of the threat of danger. To them, and the letters written and mailed to foreign correspondents before the fatal day, we owe the clear idea of what was going on.

The Voice of St. Lucia, printed at Castries, had this story on May 8 of the days preceding the destruction of St. Pierre:

"Mount Pelee began to show signs of uneasiness in the last days of April. On the 3d inst. it began to throw out dense vol-

umes of smoke, and at midnight belched out flames, accompanied by rumbling noises. Flames were again visible at half-past five o'clock the next morning, and similar noises were audible. At the foot of Mount Pelee are the villages of Precheurs and Ste. Philomene. The inhabitants were thrown into great consternation by the sights and sounds, and especially by the darkening of the day by volumes of thick smoke and clouds of ashes, which were falling. There was an exodus from all over the district.

"St. Pierre was on the morning of May 3 covered with a layer of ashes about a quarter of an inch thick, and appeared as if enveloped in a fog. The mountain was wrapped in the smoke which issued from it. The greatest anxiety prevailed, and all business was suspended.

"A very anxious morning was passed on the island May 4. Thanks, however, to a sea breeze, the situation appeared better at eleven o'clock, but as the breeze died away at sunset, ashes again began to fall, and the mountain and its environs presented a most dismal spectacle, causing much alarm as to what the night would bring forth. Nothing happened, however, and on Monday morning May 5, although everything was not quite serene, the aspect was decidedly encouraging. Less excitement was visible.

"At about nine o'clock on the morning of the 6th a private telegram came from Martinique, stating that the Plissonneau family had chartered the steamer Topaze, one of the boats of the Compagnie Girard, and had started for St. Lucia. At about eleven o'clock the Topaze arrived with Mrs. Plissonneau, Mr. and Mrs. Joseph Plissonneau and three children, Mrs. Pierre Plissonneau and child, and others.

"They report that at noon on Monday a stream of burning lava suddenly rushed down the southwestern slope of the mountain, and, following the course of the Riviere Blanche, the bed of which is dry at this season of the year, overwhelmed everything which obstructed its rush to the sea. Estates and

buildings were covered up by the fiery wave, which appeared to rise to a height of some twenty feet over an area of nearly a quarter of a mile. When the torrent had poured itself into the sea, it was found that the Guerin sugar factory, on the beach, five miles from the mountain and two from St. Pierre, was imbedded in lava. The burning mass of liquid had taken only three minutes from the time it was first perceived to reach the sea, five miles away.

"Then a remarkable phenomenon occurred. The sea receded all along the western coast for about a hundred yards and returned with gentle strength, covering the whole of the sea front of St. Pierre and reaching the first houses on the Place Bertin. This created a general panic, and the people made for the hills. Though the sea retired again, without great damage being done ashore or afloat, the panic continued, intensified by terrible detonations, which broke from the mountain at short intervals, accompanied with dense emissions of smoke and lurid flashes of flame.

"This was awful in daylight, but, when darkness fell, it was more terrible still, and, at each manifestation of the volcano's anger, people, in their nightclothes, carrying children, and lighted by any sort of lamp or candle they had caught up in their haste, ran out into the dark streets, wailing and screaming, and running aimlessly about the town.

"The mental strain becoming unendurable, the Topaze was got ready, and the refugees hurriedly went on board and started for St. Lucia. In the afternoon the gentlemen of the party, having placed their families in safety, returned by the Topaze to Martinique.

"In the meantime, telegrams were being sent from Martinique, imploring that a steamer be chartered to bring away terrified people from St. Pierre. But the superintendent of the Royal Mail company, at Barbados, would not allow one of the coasting boats, the only steamer available, to go to Martin-

ique. At a little before five o'clock in the afternoon cable communication was interrupted and remains so."

Martinique mails, forwarded just prior to the disaster, arrived in Paris on May 18. The newspapers printed a number of private letters from St. Pierre, giving many details of events immediately preceding the catastrophe. The most interesting of these was a letter from a young lady, who was among the victims, dated May 3. After describing the aspect of St. Pierre before dawn, the town being lit up with flames from the volcano, everything covered with ashes, and the people excited, yet not panic-stricken, she said:

"My calmness astonished me. I am awaiting the event tranquilly. My only suffering is from the dust which penetrates everywhere, even through closed windows and doors. We are all calm. Mama is not a bit anxious. Edith alone is frightened. If death awaits us there will be a numerous company to leave the world. Will it be by fire or asphyxia? It will be what God wills. You will have our last thought. Tell brother Robert that we are still alive. This will, perhaps, be no longer true when this letter reaches you."

The Edith mentioned was a lady visitor who was among the rescued. This and other letters inclosed samples of the ashes which fell over the doomed town. The ashes were a bluish-gray, impalpable powder, resembling newly ground flour and slightly smelling of sulphur.

Another letter, written during the afternoon of May 3, says:

"The population of the neighborhood of the mountain is flocking to the city. Business is suspended, the inhabitants are panic-stricken and the firemen are sprinkling the streets and roofs, to settle the ashes, which are filling the air."

The letters indicate that evidences of the impending disaster were numerous five days before it occurred.

Still another letter says:

"St. Pierre presents an aspect unknown to the natives. It is a city sprinkled with gray snow, a winter scene without cold.

The inhabitants of the neighborhood are abandoning their houses, villas and cottages, and are flocking to the city. It is a curious pell-mell of women, children and barefooted peasants, big, black fellows loaded with household goods. The air is oppressing; your nose burns. Are we going to die asphyxiated? What has to-morrow in store for us? A flow of lava, rain or stones or a cataclysm from the sea? Who can tell? Will give you my last thought if I must die."

A St. Pierre paper of May 3 announces that an excursion arranged for the next day to Mount Pelee had been postponed, as the crater was inaccessible, adding that notice would be issued when the excursion would take place.

An inhabitant of Morne Rouge, a town of 600 inhabitants, seven kilometers from St. Pierre, who was watching the volcano at the moment of the catastrophe, said that there were seven luminous points on the volcano's side just before it burst.

He said that all about him when the explosion came, there was a terrible suction of air which seemed to be dragging him irresistibly toward the mountain in spite of all his resistance. The volcano then emitted a sheet of flame which swept down toward St. Pierre. There was no sharp, distinct roar of explosion as when a great cannon is fired, but only awful jarring rumblings.

He thought that the entire outburst that did all the work of havoc did not last more than thirty seconds. Then there was complete darkness for ten minutes, caused by the dense volumes of sulphurous smoke and clouds of dust and shattered rocks. The entire country all about St. Pierre was turned into a chaotic waste. All the trees were either torn up by the roots or snapped off, to lie level with the ground.

The outlines of the town but imperfectly remained. The tangle of debris was such that after the rescuers came, it was with difficulty that the course of streets could be followed.

In spite of the horrible surroundings, and the universal wave of human sympathy which had been evoked, looting

began almost as soon as relief. As soon as it was possible to land, ghouls began to rob the bodies of the victims. The monsters plied their nefarious trade in small boats. Skimming along the shore they would watch for an opening when troops and rescue parties were elsewhere, then land, grab what they could, and sail away again.

The United States government tug Potomac, while on her way to Fort de France with supplies from San Juan, Porto Rico, overhauled a small boat containing five negroes and a white man. Something in the appearance of the men excited the suspicions of the commander of the Potomac, Lieutenant McCormick, and he ordered them to come on board. When they were searched, their pockets were found to be filled with coin and jewelry. Rings in their possession had evidently been stripped from the fingers of the dead. Lieutenant McCormick placed them all under arrest, and later turned them over to the commander of the French cruiser Suchet for punishment.

Thus it was that no detail of grewsome horror was lacking to make the shocking tale of the destruction of St. Pierre complete.

The hour of the disaster is placed at about eight o'clock. A clerk in Fort de France called up another by telephone in St. Pierre and was talking with him at 7:55 by Fort de France time, when he heard a sudden, awful shriek, and then could hear no more.

"The little that actually happened then can be briefly, very briefly told," says W. S. Merriwether, the New York Herald correspondent. "It is known that at one minute there lay a city smiling in the summer morning; that in another it was a mass of swirling flames, with every soul of its 30,000 writhing in the throes of death. One moment and church bells were ringing joyful chimes in the ears of St. Pierre's 30,000 people—the next the flame-clogged bells were sobbing a requiem for 30,000 dead. One waft of morning breeze flowed over cathe-

dral spires and domes, over facades and arches and roofs and angles of a populous and light-hearted city—the next swept a lone mass of white hot ruins. The sun glistened one moment on sparkling fountains, green parks and fronded palms—its next ray shone on fusing metal, blistered, flame-wrecked squares and charred stumps of trees. One day and the city was all light and color, all gayety and grace—the next its ruins looked as though they had been crusted over with twenty centuries of solitude and silence."

St. Pierre was a vast charnel-house. Skirting for nearly a league the blue waters of the Caribbean, its smoking ruins became the funeral pyre of 30,000, not one of whom lived long enough to tell adequately a story that will stand grim, awful, unforgotten as that of Herculaneum, when the world is older by a thousand years.

St. Pierre was as dead as Pompeii. Most of her people lay fathoms deep in a tomb made in the twinkling of an eye by the collapse of their homes, and sealed forever under tons of boiling mud, avalanches of scoria and a hurricane of volcanic dust.

Over the entombed city the volcano from a dozen vents yet poured its steaming vapors in long, curling wreaths, that mounted thousands of feet aloft, like smoking incense from a gigantic censer above the bier of some mighty dead.

Such was the disaster which burst upon the hapless people of the island of Martinique, while almost at the same moment a sister isle, St. Vincent, was suffering a kindred fate. Similar in natural conditions, these two little colonies of the West Indies, one French and one English by affiliation, underwent the shock of nature's assault and sank in grief before a horror-stricken world.